Columbia University in the City of New York

AI and OR at Scale on the Cloud

Assignment 5

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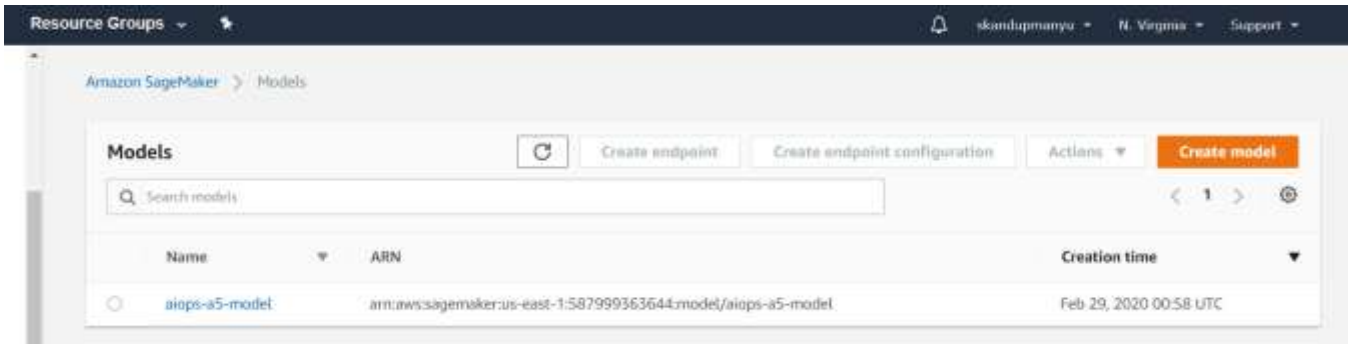
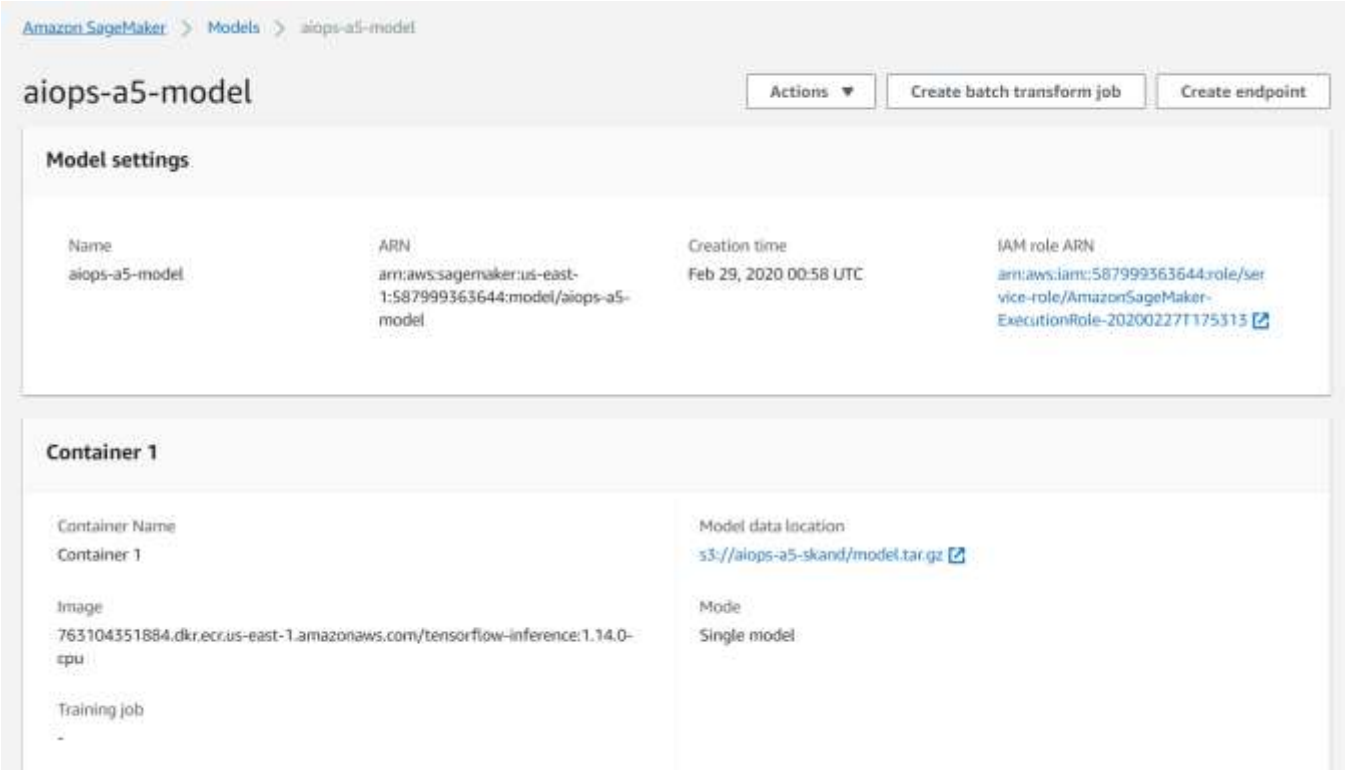
In this assignment you'll be deploying your model as a service on AWS.
If you didn't succeed in training a model and saving it with tensorflow save, you can use this one for this assignment https://aiops-2020-public.s3.us-east-2.amazonaws.com/model.tar.gz. Otherwise, use your own.

1. Sagemaker inference

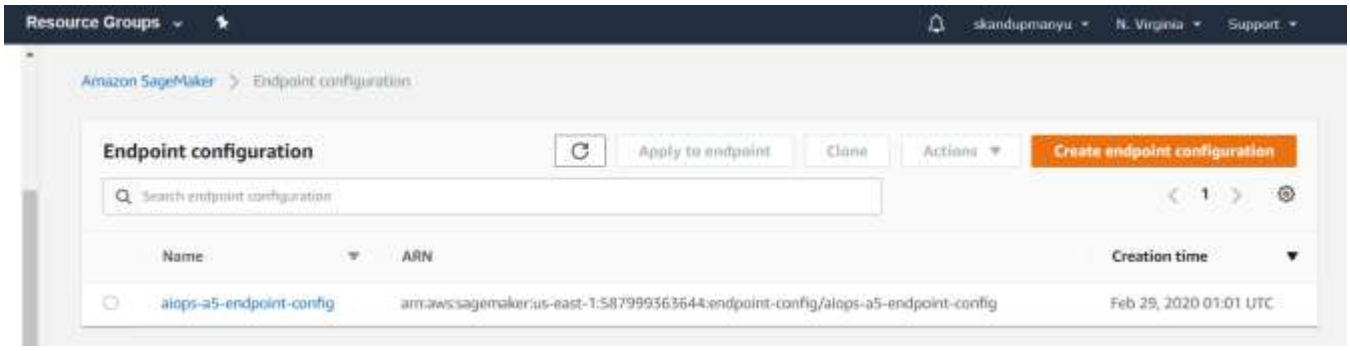
Following the example in class, deploy your model as a SageMaker inference endpoint.
Make sure to edit the model in the endpoint configuration to select the cheapest instance: "mk.t2.medium" When creating a "Model" use this image:
763104351884.dkr.ecr.us-east-1.amazonaws.com/tensorflow-inference:1.14.0-cpu

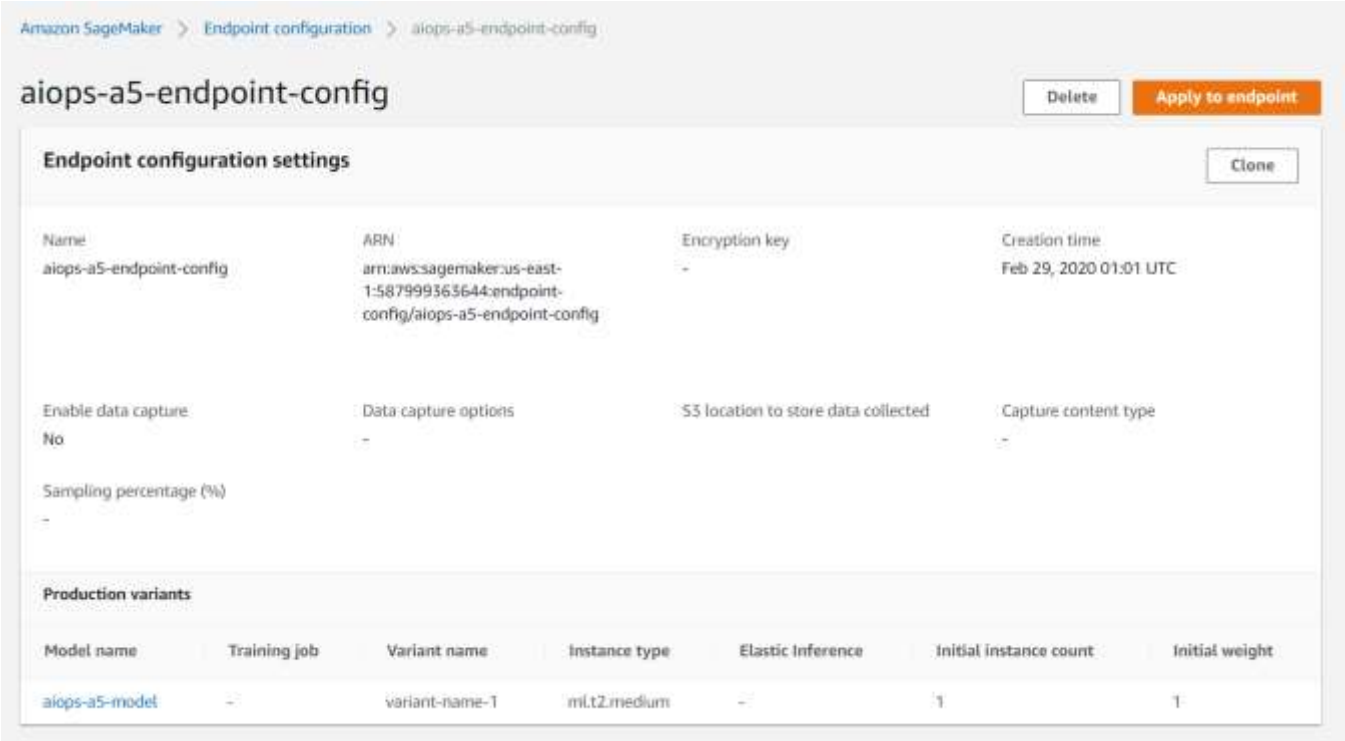
Creating model:



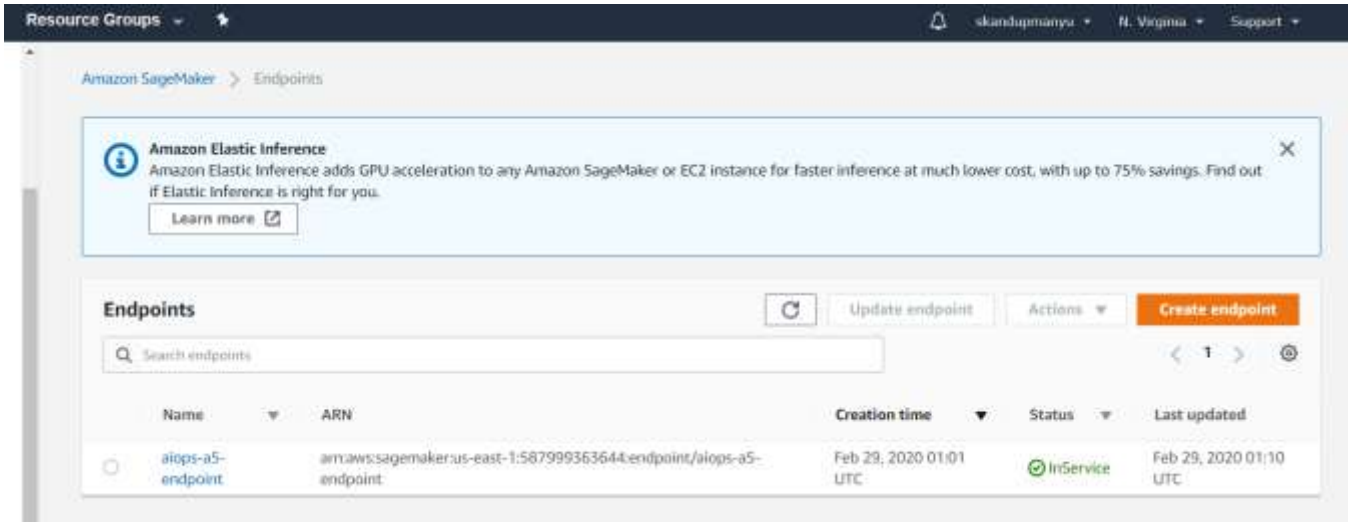


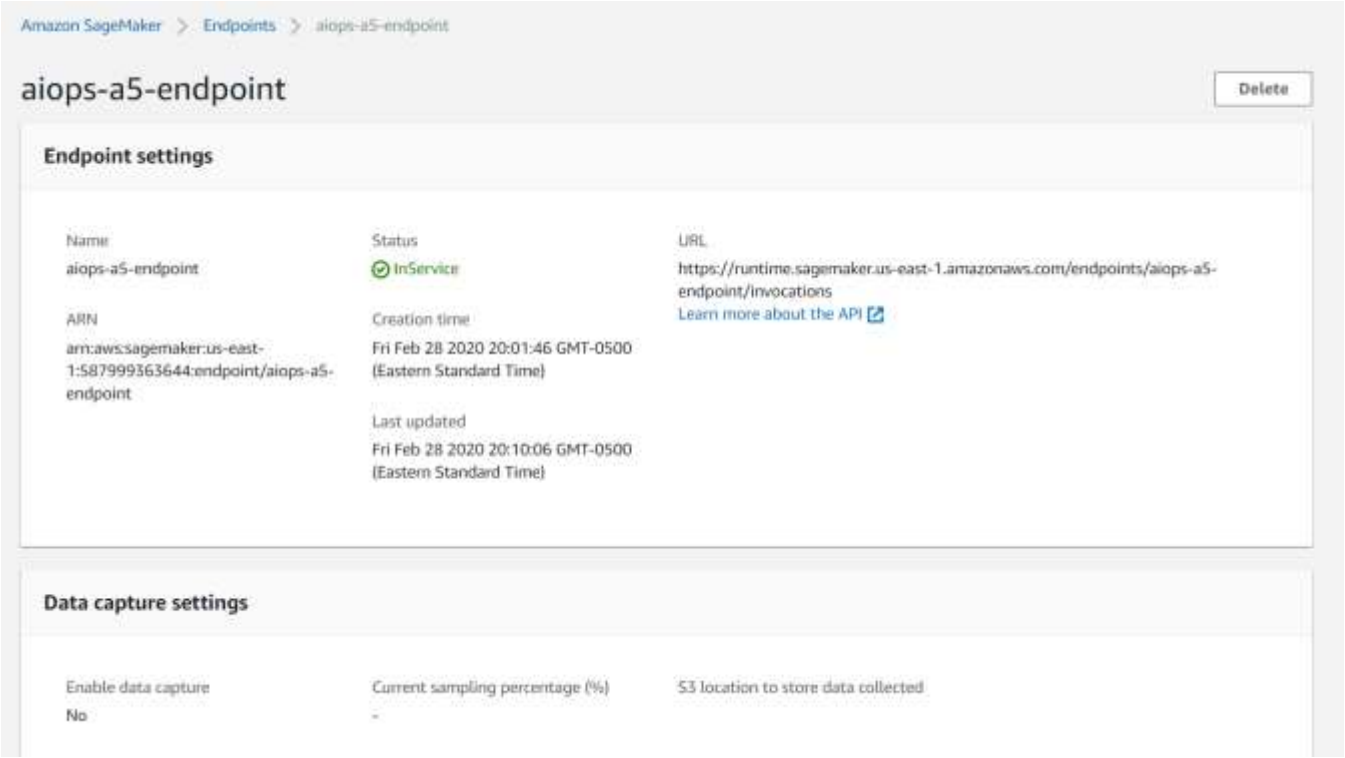
Creating endpoint config:





Creating endpoint:



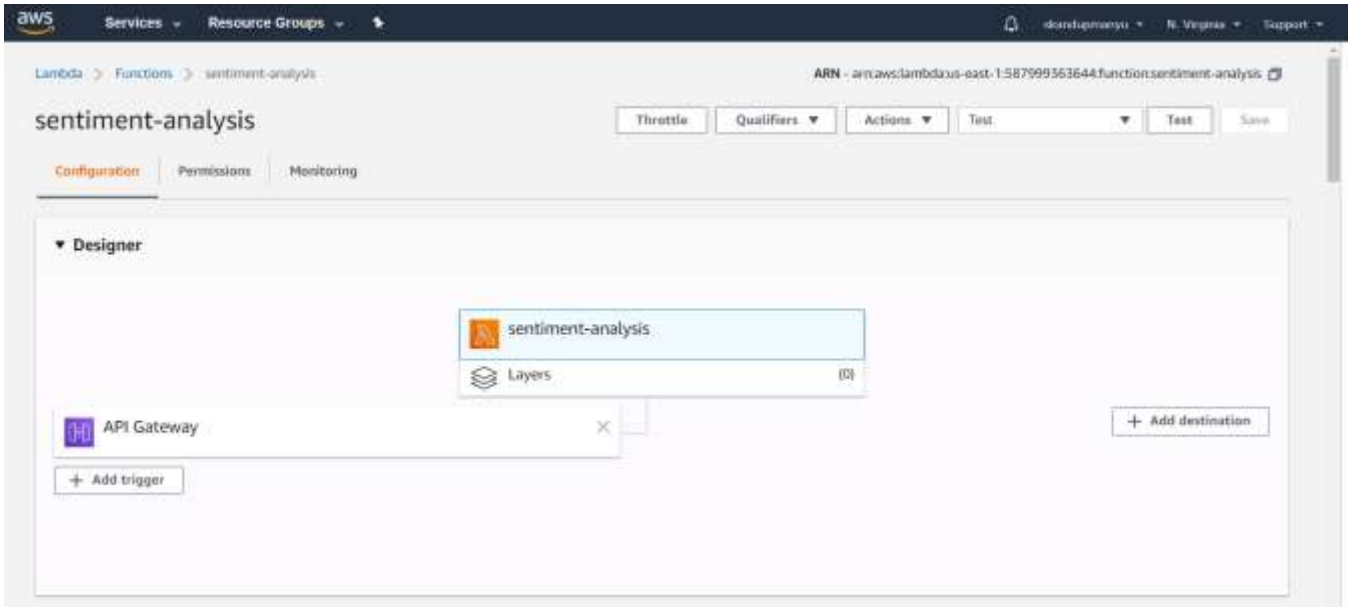


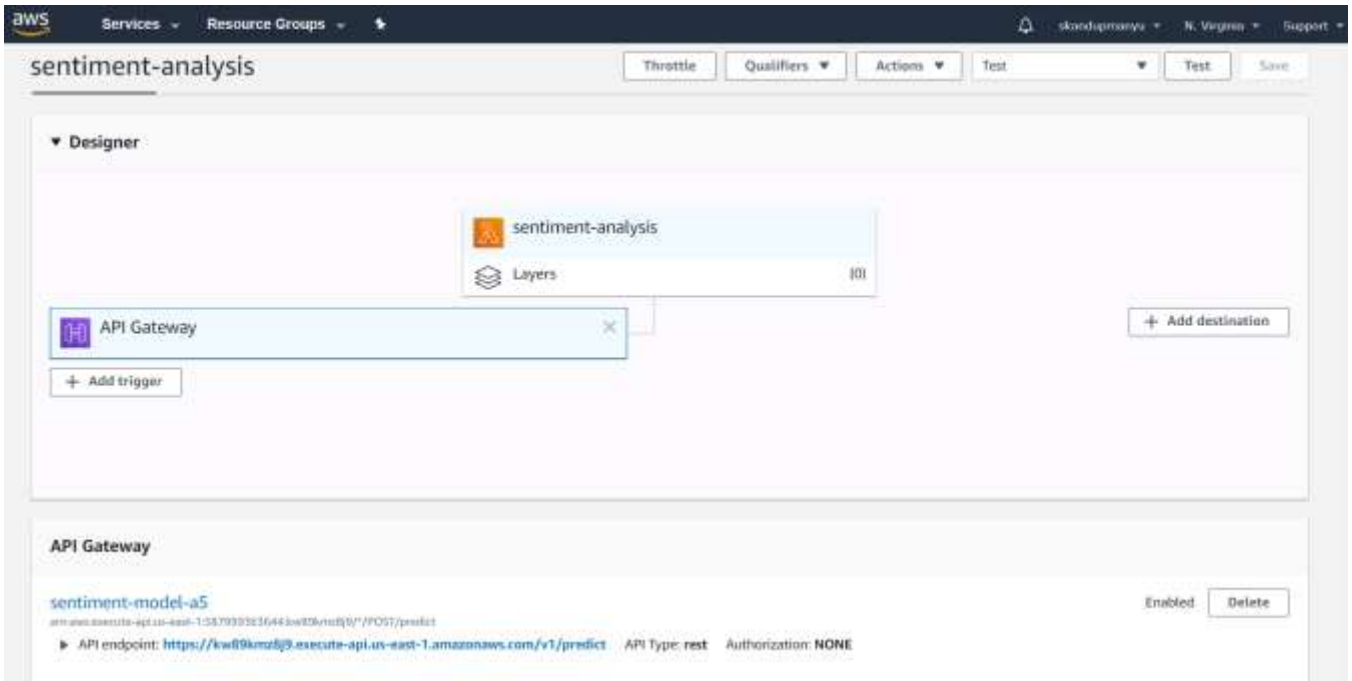
2. Lambda functions

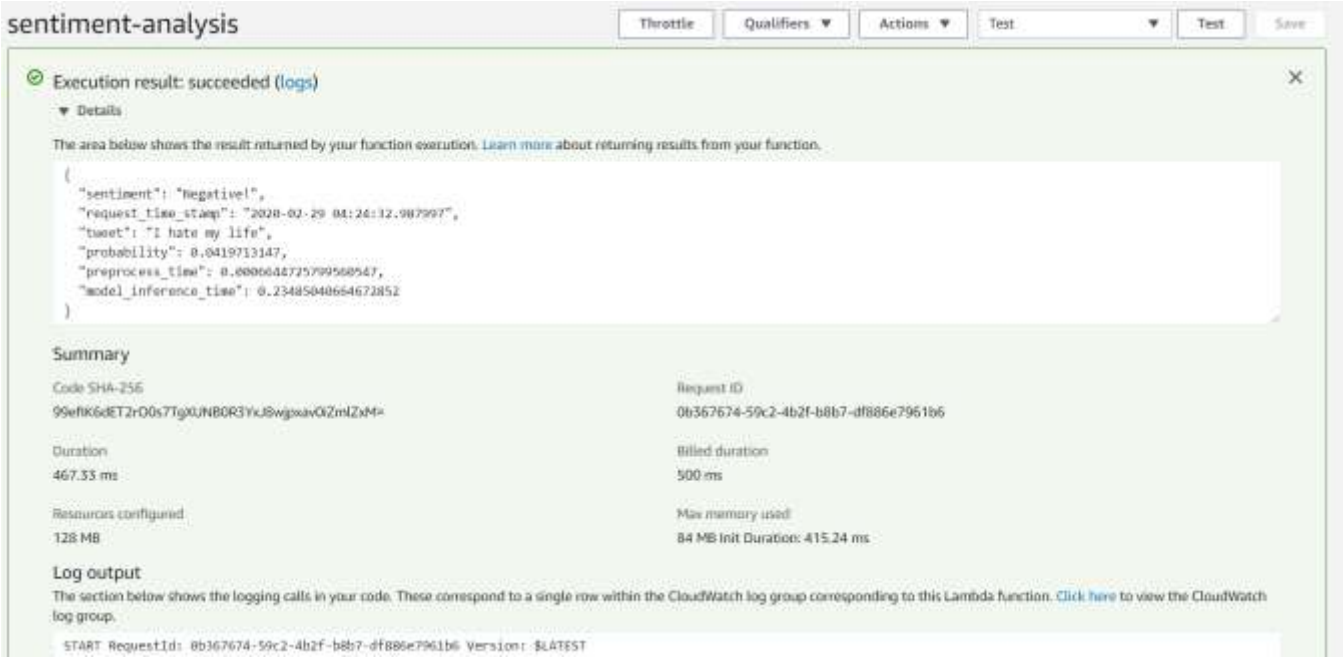
Following the example in class, build a lambda function that performs:
• Pre processing using your code from HW3
• Model inference using your SageMaker endpoint
• Post processing using a logic demonstrated in class

Your lambda function should take a JSON input with a “tweet” key and produce a JSON output with a “sentiment” key and a value that can either be “positive” or “negative” based on the model prediction.

Creating lambda:





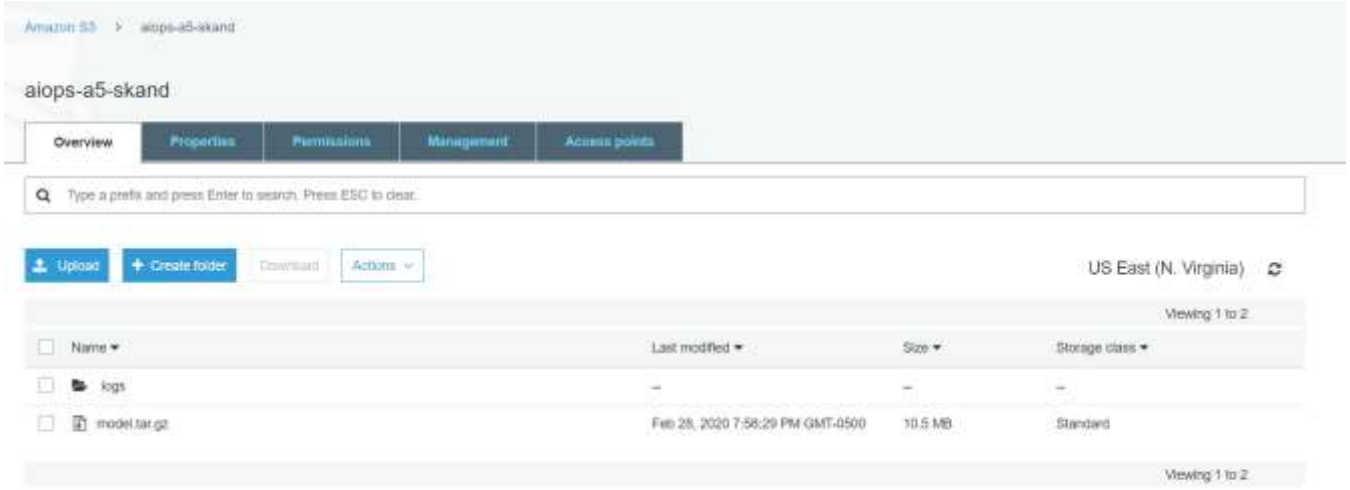


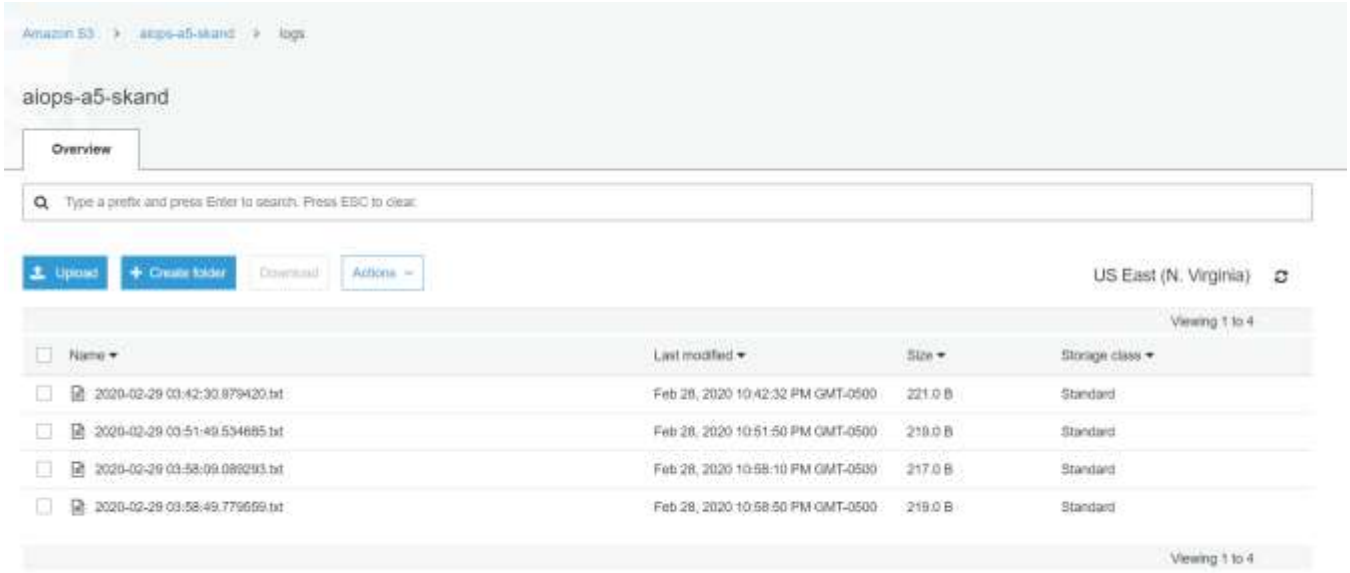
3. Payload logging

Modify your lambda function to implement payload logging.
After the post processing, your lambda should be logging a JSON object to a bucket in S3.
This object should have the following items:

- Date and time of the request
- Tweet
- Sentiment
- Probability from the model
- Pre processing time
- Model inference time

Each request should create a unique JSON object in your payload S3 directory.

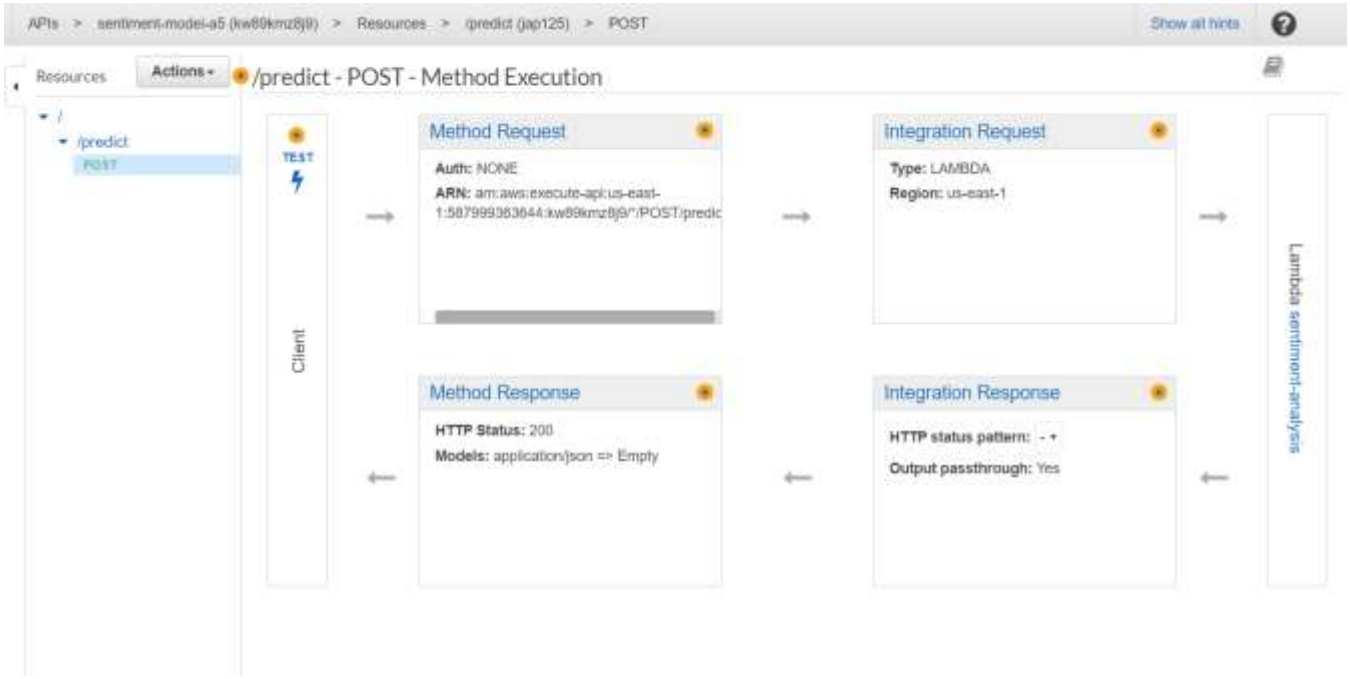


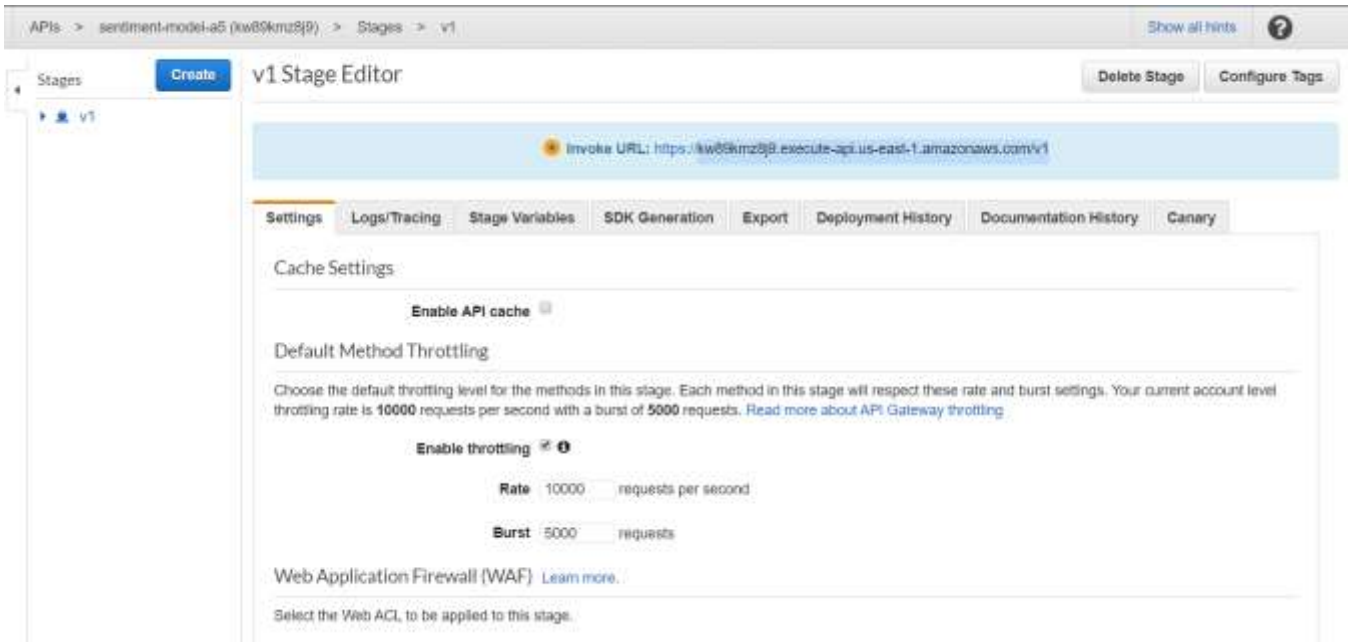


4. REST API

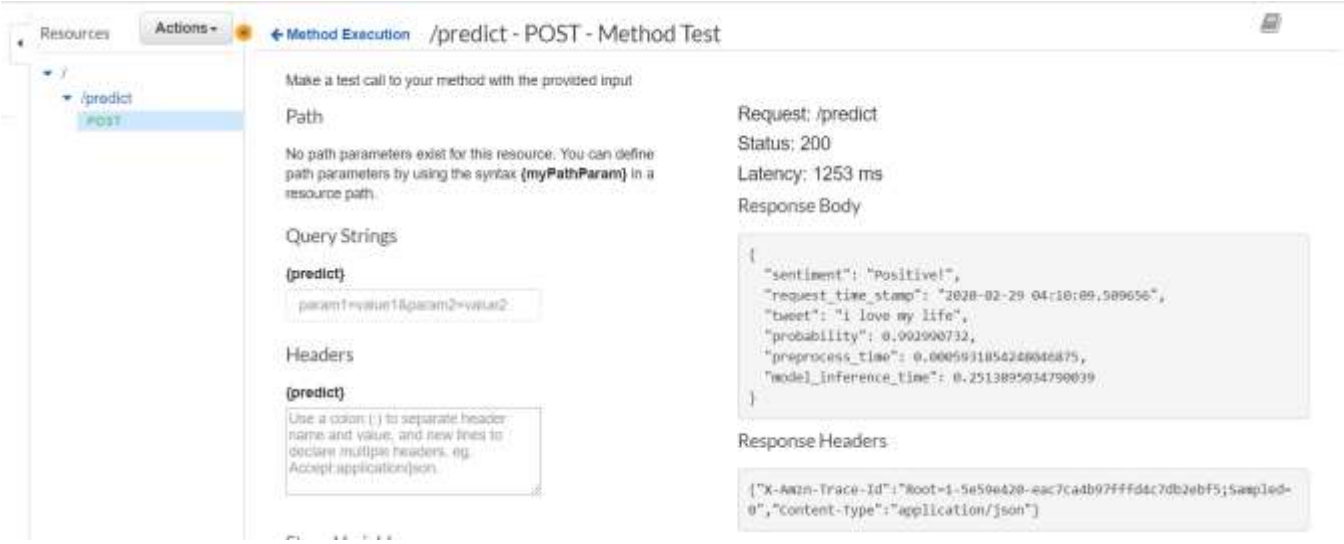
Following the example in class, create an API Gateway to expose your lambda function.
The gateway should implement a “/predict” resource with a “POST” request method.
Deploy it under a “v1” stage.
The following kind of request:
curl -X POST https://<your_endpoint>/v1/predict --header "Content-Type:application/json" --data '{"tweet": "I love apple"}'
Should return something like:
{"sentiment": "positive"}

Creating API gateway predict resource:





Test API Gateway:



Test API Gateway from local:

API Gateway Link: https://kw89kmz8j9.execute-api.us-east-1.amazonaws.com/v1/predict

Github Link: https://github.com/harsh1495/AI-Ops-A5