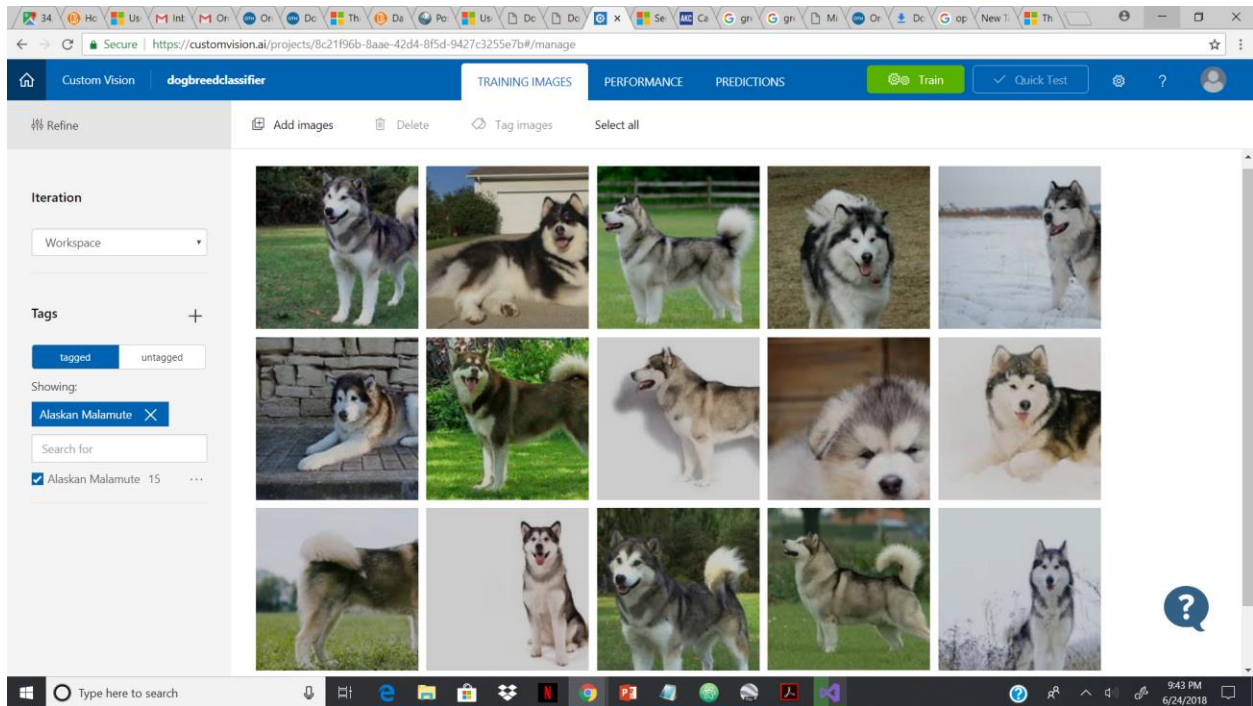


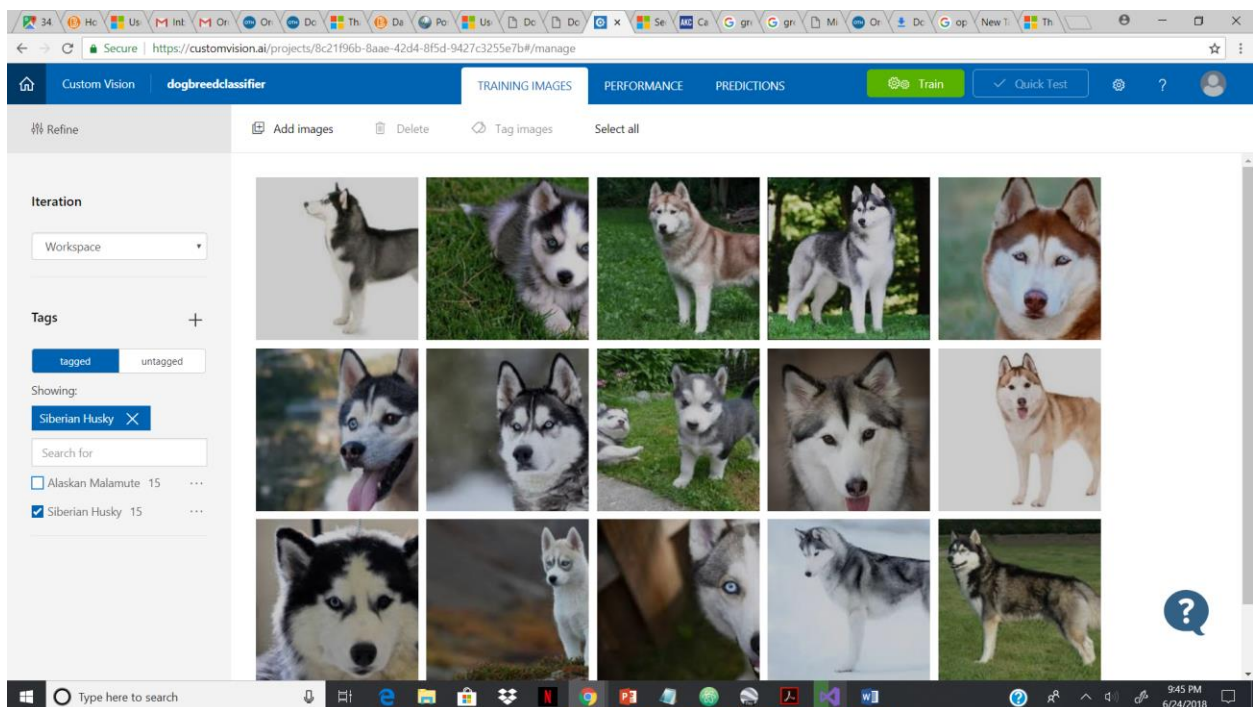
CSCI 585- DATABASE SYSTEMS HOMEWORK 4

ITERATION 1:

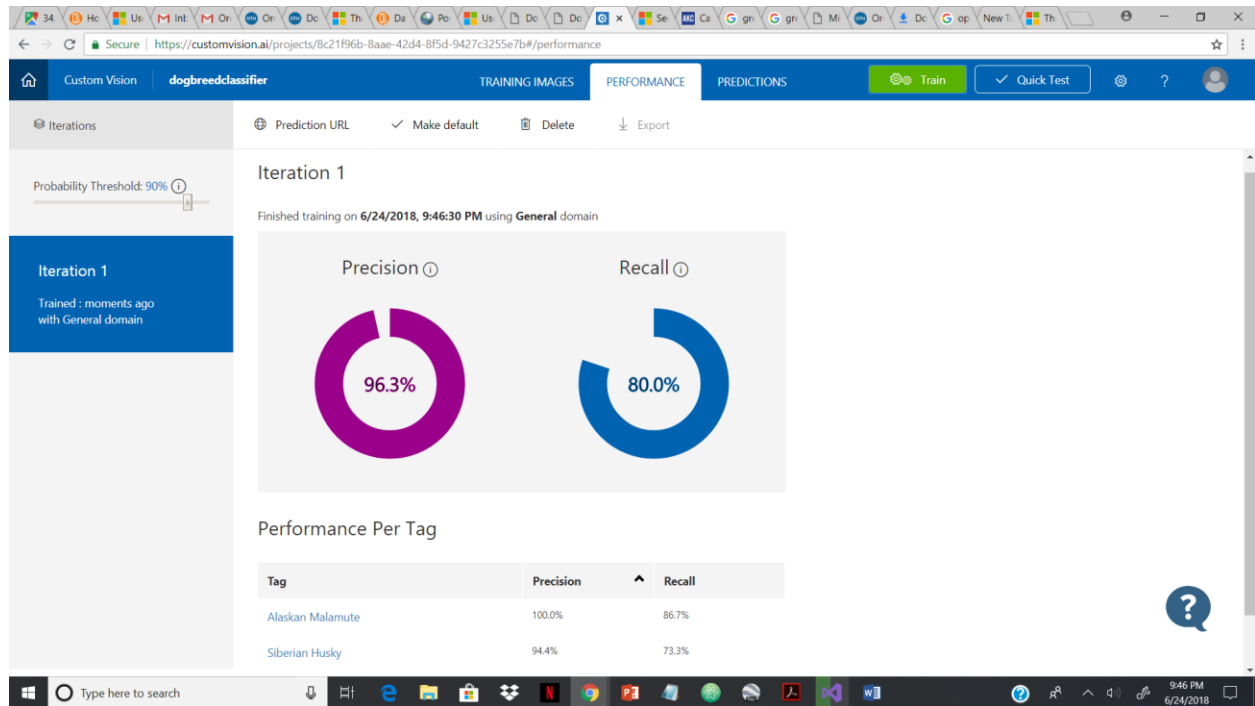
15 IMAGES OF ALASKAN MALAMUTE



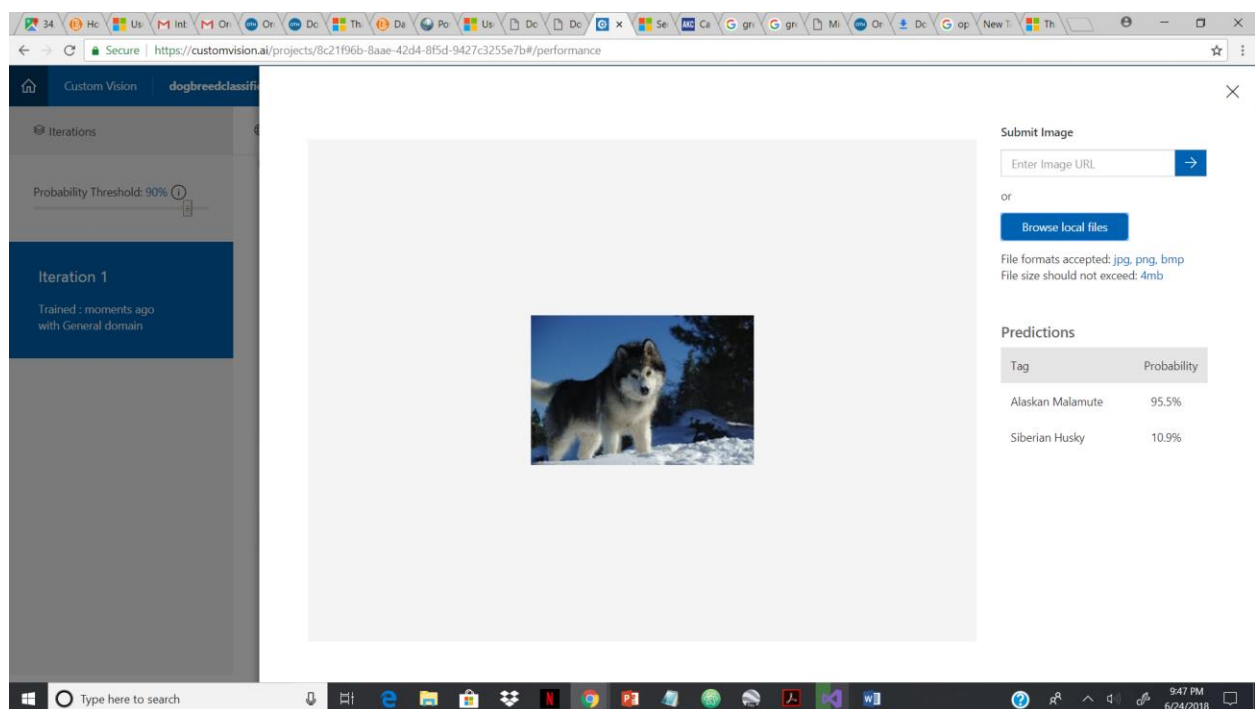
15 IMAGES OF SIBERIAN HUSKY



ITERATION 1 PERFORMANCE RESULTS



PREDICTION RESULT: CORRECTLY PREDICTED ALASKAN MALAMUTE



COGNITIVE API RESULT:

```
C:\Program Files\dotnet\dotnet.exe
Enter image file path: C:\Users\Saumya Dureja\Desktop\malamute test case 2.jpg
{"id":"ea57b2ba-7ae1-4821-bb41-5a74f343f277","project":"8c21f96b-8aae-42d4-8f5d-9427c3255e7b","iteration":"60a0418a-ddc1-48ef-bb20-ea8b8dffcaff","created":"2018-06-26T05:28:21.7491276Z","predictions":[{"probability":0.955720365,"tagId":"2c5d4e45-741a-4082-a661-e74116ec2d9a","tagName":"Alaskan Malamute"}],[{"probability":0.109728247,"tagId":"38ab09c4-de7f-4790-a9cf-e88cd38343f2","tagName":"Siberian Husky"}]}

Hit ENTER to exit...
```

PREDICTION RESULT: INCORRECTLY PREDICTED SIBERIAN HUSKY

Custom Vision | dogbreedclassifi

Iterations

Probability Threshold: 90%

Iteration 1

Trained: 1 minutes ago with General domain

Submit Image


Enter Image URL

or

File formats accepted: jpg, png, bmp
File size should not exceed: 4mb

Predictions

Tag	Probability
Alaskan Malamute	74.2%
Siberian Husky	21.3%



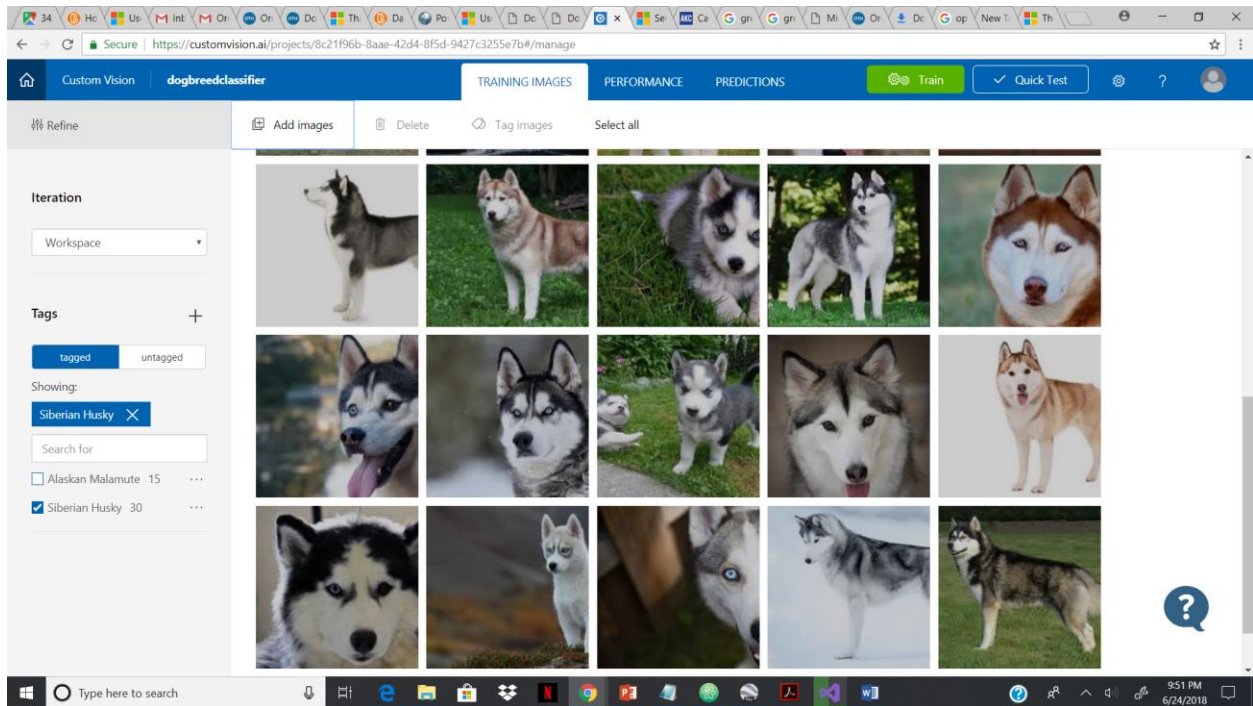
COGNITIVE API RESULT:

```
C:\Program Files\dotnet\dotnet.exe
Enter image file path: C:\Users\Saumya Dureja\Desktop\husky test case.jpg
{"id":"ba1d5fd7-c3ba-499e-b5ff-c762e53ccbd0","project":"6c21f96b-8a9e-42d4-8f5d-9427c3255e7b","iteration":"60a0418a-ddc1-48ef-bb20-ea8b8dffcaff","created":"2018-06-26T05:30:18.4236285Z","predictions":[{"probability":0.742555141,"tagId":"2c5d4e45-741a-4082-a661-e74116ec2d9a","tagName":"Alaskan Malamute"}, {"probability":0.213200942,"tagId":"38ab09c4-de7f-4790-a9cf-ed8cd38343f2","tagName":"Siberian Husky"}]}

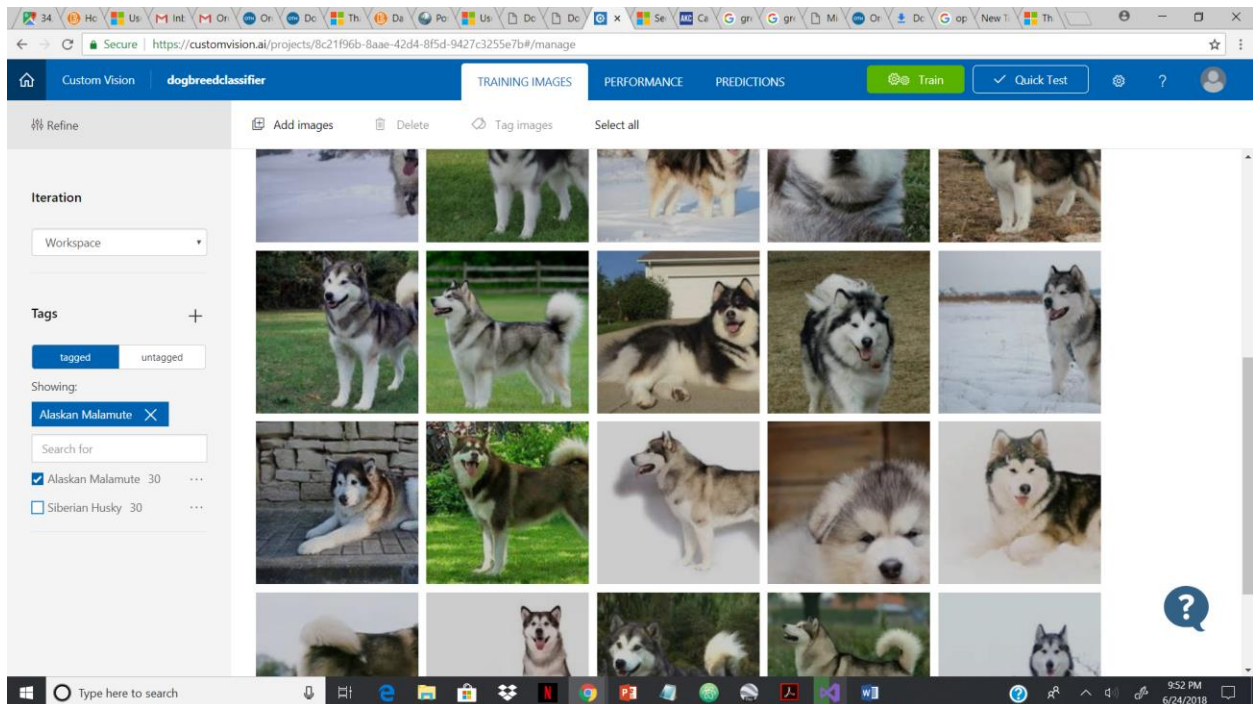
Hit ENTER to exit...
```

ITERATION 2:

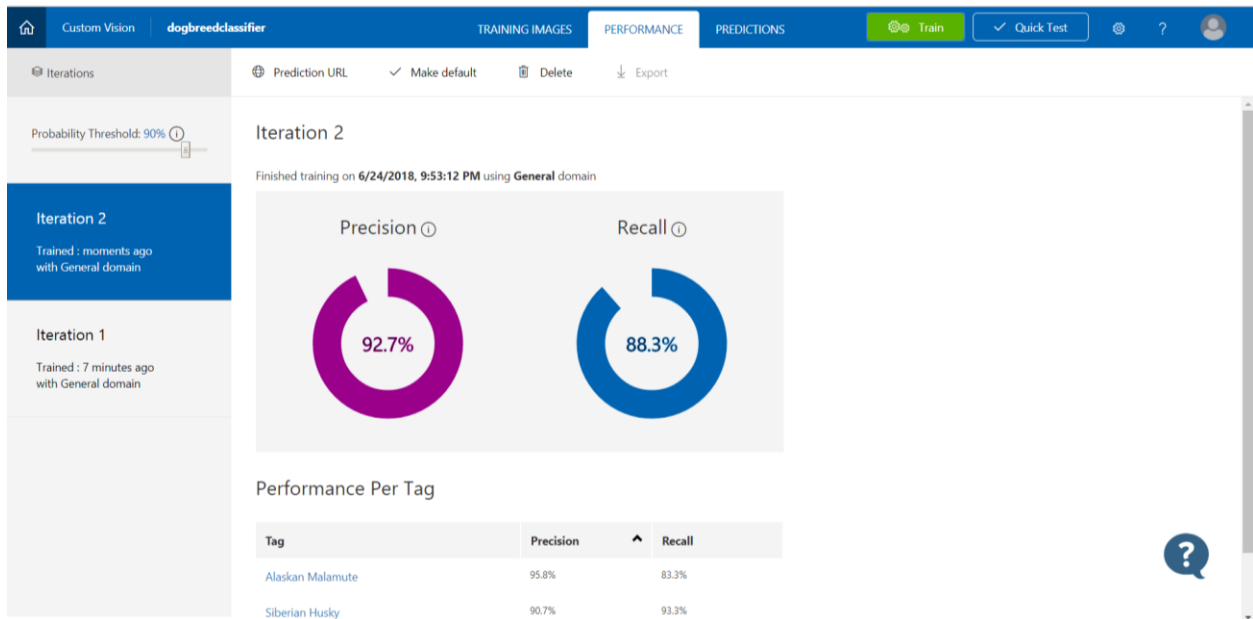
30 IMAGES OF SIBERIAN HUSKY



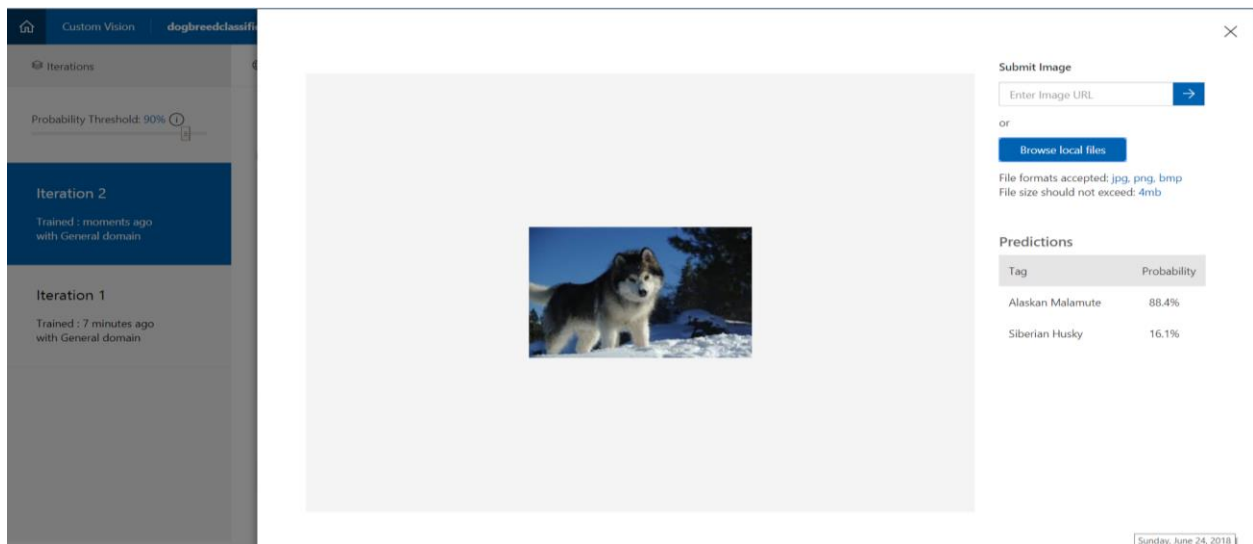
30 IMAGES OF ALASKAN MALAMUTE



PERFORMANCE RESULTS:



PREDICTION RESULT: CORRECTLY PREDICTED ALASKAN MALAMUTE BUT WITH LESSER PROBABILITY AS COMPARED TO ITERATION 1



COGNITIVE API RESULT:

```
C:\Program Files\dotnet\dotnet.exe
Enter image file path: C:\Users\Saumya Dureja\Desktop\malamute test case 2.jpg
{"id": "f7dc5592-a18e-48db-ba3f-7a4330055031", "project": "8c21f96b-8a9e-42da-8f5d-9427c3255e7b", "iteration": "e38df05a-4df8-4233-8853-111c967cbe1b", "created": "2018-06-26T01:09:36.0480537Z", "predictions": [{"probability": 0.884473, "tagId": "2c5d4e45-741a-4882-a661-e74116ec2d9a", "tagName": "Alaskan Malamute"}, {"probability": 0.161571488, "tagId": "38ab09c4-de7f-4790-a9cf-ed8cd38343f2", "tagName": "Siberian Husky"}]}

Hit ENTER to exit...
```

PREDICTION RESULT: CORRECTLY PREDICTED SIBERIAN HUSKY


Custom Vision dogbreedclassification

Iterations

Probability Threshold: 90%

Iteration 2
Trained : moments ago
with General domain

Iteration 1
Trained : 8 minutes ago
with General domain



Submit Image

Enter Image URL

or

Browse local files

File formats accepted: jpg, png, bmp
File size should not exceed: 4mb

Predictions

Tag	Probability
Siberian Husky	72%
Alaskan Malamute	23.1%

COGNITIVE API RESULT:

```
C:\Program Files\dotnet\dotnet.exe
Enter image file path: C:\Users\Saumya Dureja\Desktop\husky test case.jpg
{"id":"eb0972c4-3f10-4724-9b6e-b579adbfaed1","project":"2c21f96b-8a8e-42d4-8f5d-9427c3255e7b","iteration":"e38df05a-4df8-4233-8853-111c967eb01b","created":"2018-06-26T01:07:42.2135473Z","predictions":[{"probability":0.7206563,"tagId":"38ab09c4-de7f-4790-a9cf-ed8cd38343f2","tagName":"Siberian Husky"}, {"probability":0.231635645,"tagId":"2c5d4e45-741a-4082-a661-e74116ec2d9a","tagName":"Alaskan Malamute"}]}

Hit ENTER to exit...
```


Try to discuss your findings and the possible reasons, such as why your iteration 1&2 are different (better or worse), and the difficulty you met in this assignment.

In iteration 1, the classifier correctly predicts the Alaskan Malamute with 95.5 percent probability but incorrectly predicts the Siberian husky to be Alaskan Malamute. This might be due to **too few features** of Siberian Husky being identified in the dataset containing just 15 images of each. The size of the dataset was too small for it clearly distinguish between the 2 breeds.

In iteration 2, the classifier correctly predicts the Siberian Husky with 72 percent probability. The performance, in this case, has improved as **more features/relevant features** of Siberian Husky were identified now that the dataset size was increased to 30 images which have helped the classifier in distinguishing between the 2 breeds and correctly predicting the Siberian husky.

However, in iteration 2, the classifier predicted the Alaskan Malamute correctly but this time the probability reduced from 95.5 percent to 88.4 percent. Therefore, the performance, in this case, became worse. This might be due to the fact that in iteration 2, the size of the dataset was increased from 15 to 30 which must have resulted in **identification of more relevant features** of the two breeds, and since each of the breeds have quite **similar appearances** (wolfish appearances), this must have resulted in decrease in the probability when predicting the Alaskan Malamute. The model is not able to differentiate between the two breeds and requires more training (**Insufficient training data**).

Difficulty:

- Problem while installing Visual Studio: Didn't know .Net core development module was to be chosen for c#. Had to uninstall Visual Studio and then reinstall it.
- While executing Visual Studio code, got "System.AggregateException". The mistake made was not entering the correct image path. After correcting the path, the problem was resolved.

