



IMAGE CLASSIFICATION

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EXERCISE

1. Create a new project in Custom Vision portal. (choose one kind of project to do)
2. Prepare some images in three categories.
3. Give tags on images.
4. Train your model.
5. Evaluate your model.

1. Create a new project in Custom Vision portal. (choose one kind of project to do)

- Click on +New Project in the custom vision studio.
- Enter the name of the project as Dog Classification. This name can be name of what you are going to do image classification on.
- Give project types as Object Detection.
- Give the domains as general.
- Select create project.
- A new project with the name you want will be created.
- I have created a new project with the name dog classification.

NEW PROJECT

Projects

Project Name:

Search by project name

Project Type:

Any project type



Resource:

All



NEW PROJECT



OBJECT DETECTION

Dog classification

dog

2 and 3. Prepare some images in three categories and tag them

- Click on add images and add all the images you want.
- Give each image a class to which the image belongs to.
- Upload 3 categories of images and classify them under different tags.
- Upload about 15 or more images in each class.
- Give each image the tag so you can further train the model.
- I have selected 3 breeds of dogs as tags in 3 categories.
 1. German Shepherd
 2. Pug
 3. Pomeranian

Prepare images in 3 categories and tag the training images

Dog classification

Training Images

Performance

Predictions

Train

Quick Test

Filter

Iteration

Workspace

Tags

Tagged

Untagged

Showing:

Pomeranian

X

Pug

X

German Shepherd

X

Search For Tags:

☒ German Shepherd 18

...

☒ Pomeranian 19

...

☒ Pug 19

...

Add images

Delete

Select all

Get started

hide

Follow these steps to build your first model.

Create project

Upload images

Tag your training images

Train your project

WHAT'S NEXT?

After training is completed, you can:

[Quick Test your model](#)

Continue improving your model by providing images with different angles, backgrounds, object size, groups of photos, and other variants.

When you're ready to use your model:

[Use the Prediction API](#)

Get started

4. Train your model.

- Click on Train.
- Select quick training.
- Once the training is done you will get a performance result
- Precision percentage tells us that if a tag is predicted by our model how likely that is right.
- Recall percentage tells us that out of the tags which were predicted correctly, how much percentage our model correctly find it.
- Map is mean Average Precision percentage that tells us the overall object detector performance across all tags.
- Perform the training with adding more images to get better performance.

TRAIN MODEL

Dog classification

Training Images

Performance

Predictions

Train

Quick Test

Settings

Help

User

Iterations

Probability Threshold: 50%

Overlap Threshold: 30%

Iteration 3
Trained : 8 hours ago with General domain

Iteration 2
Trained : 8 hours ago with General domain

Iteration 1
Trained : 9 hours ago with General domain

Publish

Prediction URL

Delete

Export

Iteration 3

Finished training on 1/30/2021, 2:25:13 AM using General domain
Iteration id: df5003b6-2ed6-4400-8ceb-519b5de585a2

Precision 100.0%

Recall 50.0%

mAP 100.0%

Performance Per Tag

Tag	Precision	Recall	A.P.	Image count
Pomeranian	100.0%	50.0%	100.0%	19
German Shepherd	100.0%	50.0%	100.0%	18
Pug	100.0%	50.0%	100.0%	19

Get started

Follow these steps to build your first model.

Create project

Upload images

Tag your training images

Train your project

WHAT'S NEXT?

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Use the Prediction API

Get started

5. Evaluate your model.

- Once the training result has come, its time to test our model.
- Click on Quick Test to test the model.
- Click on Browse local files and upload the test image you want to find.
- The model will show you the accuracy with which it has predicted the image correctly.
- Predictions are shown in red.
- Check for different categories (tags) you have given to see if your model works completely find.
- In our case we checked for 3 tags: German Shepherd, Pomeranian and Pug.

EVALUATE MODEL

 Dog classification

Iterations

Probability Threshold:

Overlap Threshold: 30%

Iteration 3
Trained : 8 hours ago w domain

Iteration 2
Trained : 8 hours ago w domain

Iteration 1
Trained : 9 hours ago w domain

Quick Test ☒ Regions Shown

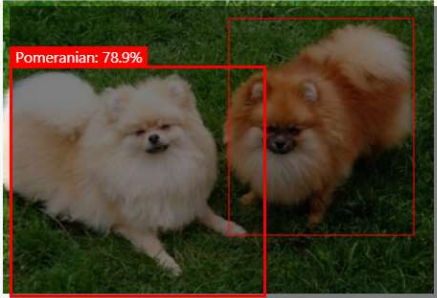


Image URL

or

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

Using model trained in
Iteration

Predicted Object Threshold
Only show suggested objects if the probability is above the selected threshold.
Threshold Value: 15%

Predictions
Predictions are shown in red

Tag	Probability
Pomeranian	78.9%
Pomeranian	73.9%

PREDICTIONS For German Shepherd

Dog classification

Training ImagesPerformancePredictionsTrainQuick Test

Filter

Iteration

Iteration 3

Tags

Showing:

German Shepherd

Search For Tags:

☐ German Shepherd

☐ Pomeranian

☐ Pug

Probability Threshold: 18%

Sort

☐ Suggested

☐ Newest

☒ Oldest

Delete

<

>

Predictions

German Shepherd: 87.1%

German Shepherd: 0.6%

German Shepherd: 0.5%

open image detail

Get started

PREDICTIONS FOR PUG

Dog classification

Training ImagesPerformancePredictionsTrainQuick Test

Filter

Iteration

Iteration 3

Tags

Showing:

Pug

Search For Tags:

☐ German Shepherd

☐ Pomeranian

☒ Pug

Probability Threshold: 11%

Sort

☐ Suggested

☒ Newest

☐ Oldest

Delete

Predictions

Pug: 82.1%

Pug: 0.8%

Pug: 0.7%

Pug: 0.7%

Pug: 0.6%

open image detail

Get started

Predictions For Pomeranian

Dog classification

Training Images

Performance

Predictions

Train

Quick Test

?

Filter

Iteration

Iteration 3

Tags

Showing: all predicted images

Search For Tags:

☐ German Shepherd

☐ Pomeranian

☐ Pug

Sort

☐ Suggested

☒ Newest

☐ Oldest

Delete

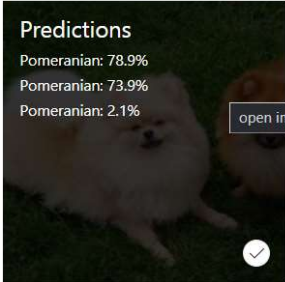
Predictions

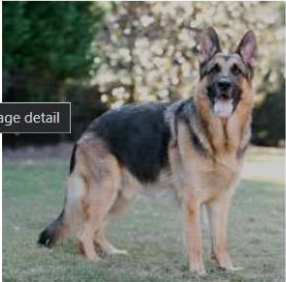
Pomeranian: 78.9%


Pomeranian: 73.9%


Pomeranian: 2.1%


open image detail




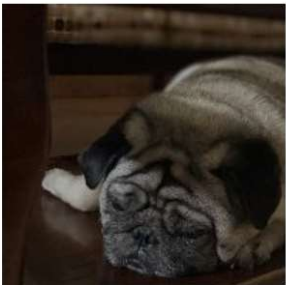





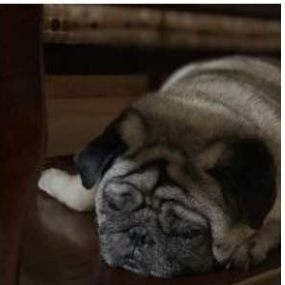




















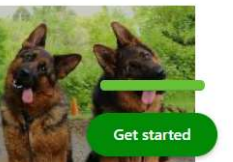






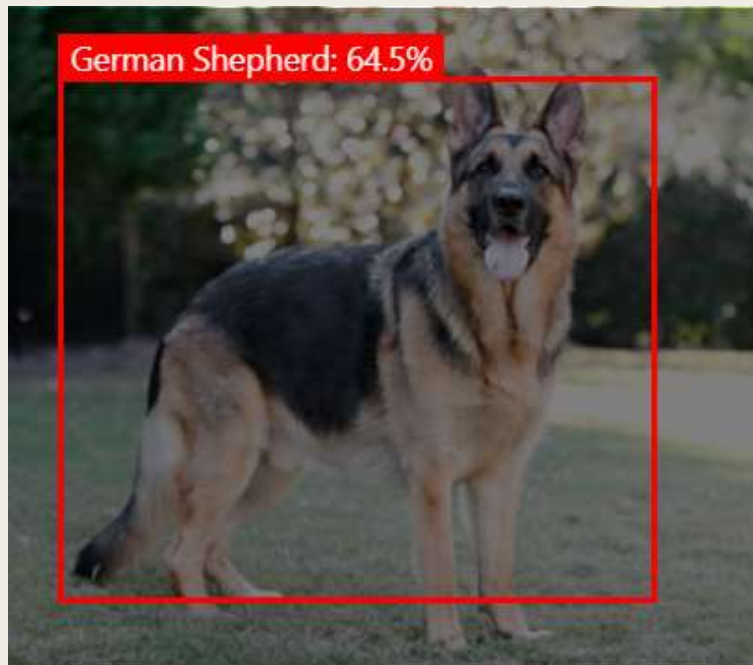




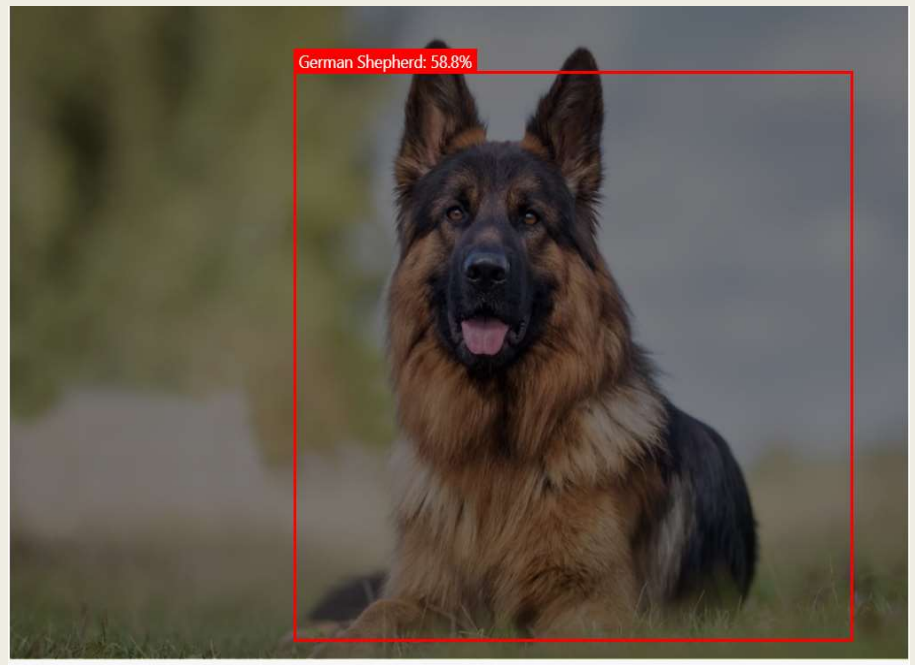


Get started

TAG1: GERMAN SHEPHERD

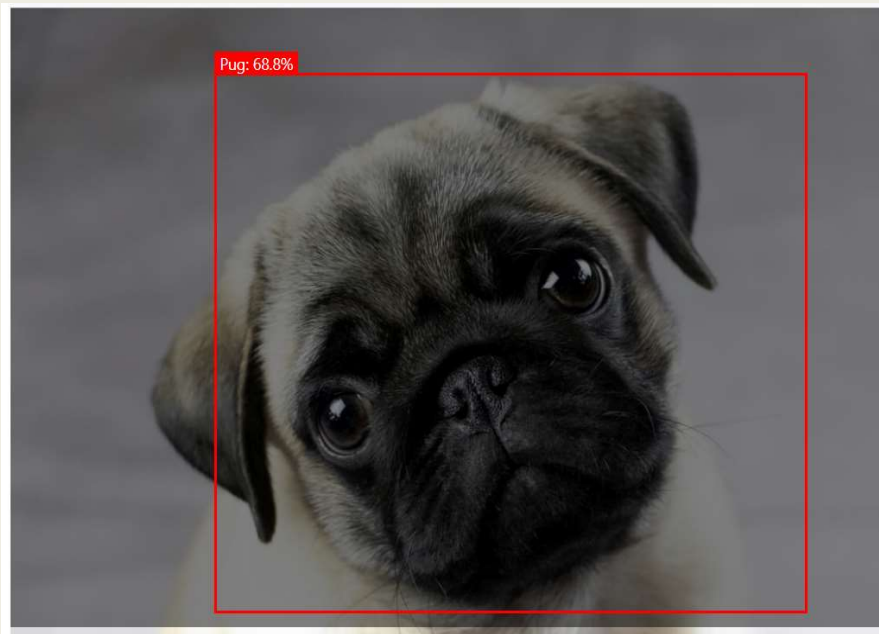


Accuracy: 64.5%

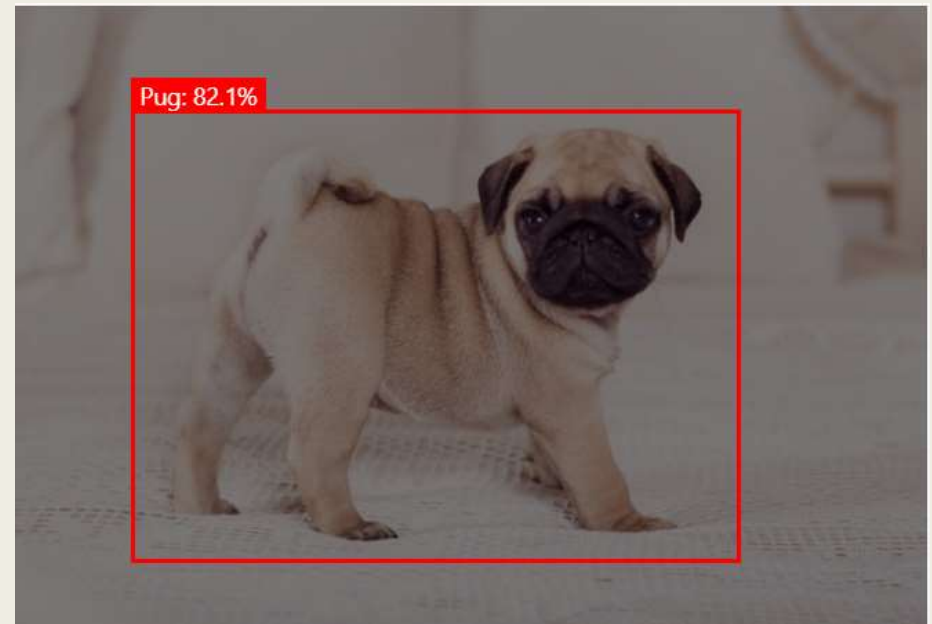


Accuracy: 58.8%

TAG 2: PUG

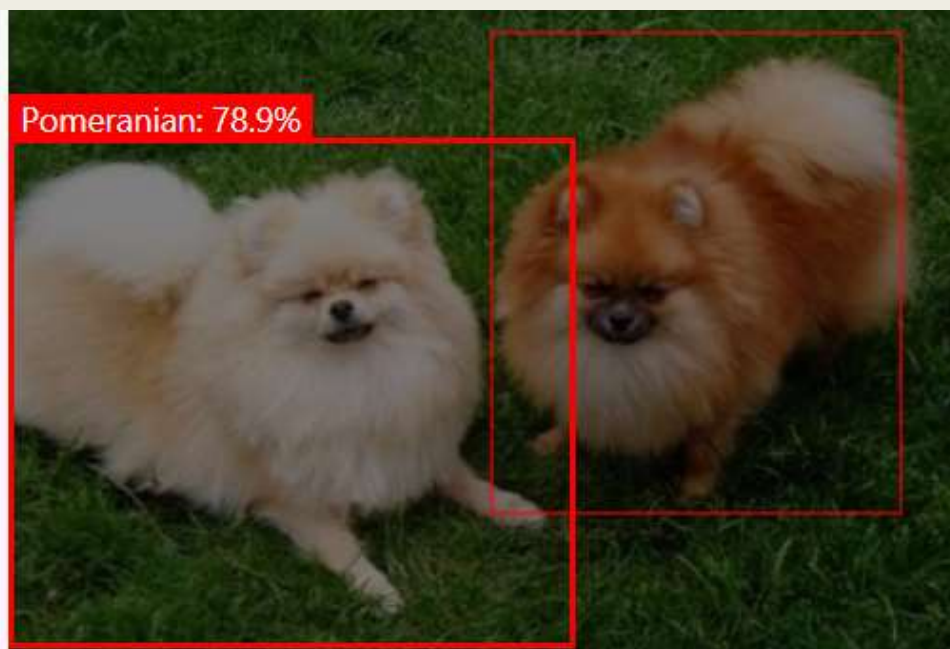


Accuracy: 68.8%

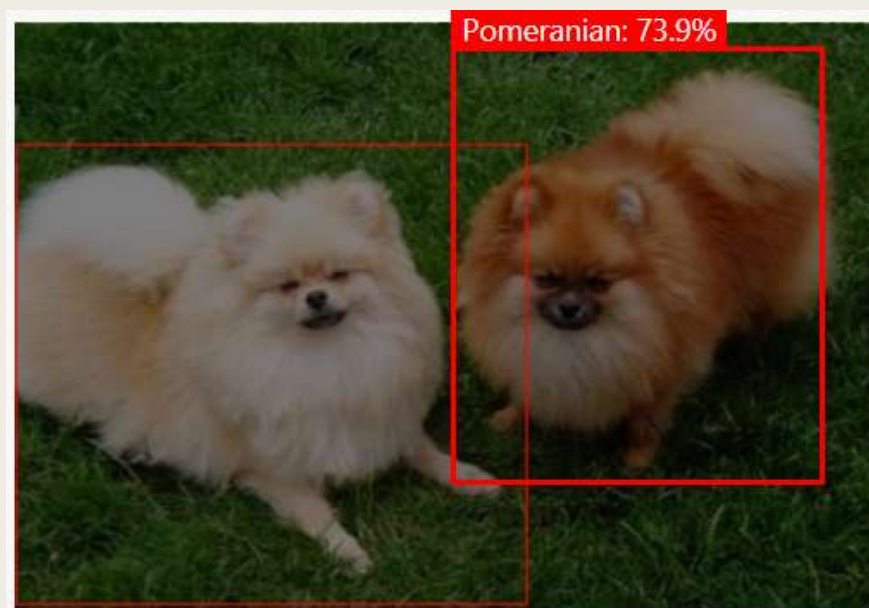


Accuracy: 82.1%

TAG 3: POMERANIAN



78.9% ACCURACY



73.9% ACCURACY

CONCLUSION

- Thus, the model has successfully predicted all the images we have uploaded as test images.
- Thus, we have learnt how to do image classification using Microsoft Azure Visual Studio for various categories of images that we have provided.
- It has predicted our result with utmost precision.



THANK YOU

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