Expected Results are achieved as seen in the files “alexnet-pet-images.txt”, “resnet-pet-images.txt” and “vgg-pet-images.txt”. See screenshots for all 3 with the results and another one for expected results (from lesson “Final Results”).

Results Table

# Total Images	40
# Dog Images	30
# Not-a-Dog Images	10

CNN Model Architecture:	% Not-a-Dog Correct	% Dogs Correct	% Breeds Correct	% Match Labels
ResNet	90.0%	*100.0%*	90.0%	82.5%
AlexNet	*100.0%*	*100.0%*	80.0%	75.0%
VGG	*100.0%*	*100.0%*	*93.3%*	*87.5%*

Project Results

Figure 1. Expected Results.

```
*** Results Summary for CNN Model Architecture:  ALEXNET ***
Number of Images: 40
Number of Dog Images: 30
Number of Not-a-Dog Images: 10
Percentage of Correctly Classified Dog Images: 100.0
Percentage of Correctly Classified Not-a-Dog Images: 100.0
Percentage of Correctly Identified Dog Breeds: 80.0
Percentage of Label Matches: 75.0
```

Figure 2. Results for ALEXNET.

```
*** Results Summary for CNN Model Architecture:  RESNET ***
Number of Images: 40
Number of Dog Images: 30
Number of Not-a-Dog Images: 9
Percentage of Correctly Classified Dog Images: 100.0
Percentage of Correctly Classified Not-a-Dog Images: 90.0
Percentage of Correctly Identified Dog Breeds: 90.0
Percentage of Label Matches: 82.5
```

Figure 3. Results for RESNET.

```
*** Results Summary for CNN Model Architecture:  VGG ***
Number of Images: 40
Number of Dog Images: 30
Number of Not-a-Dog Images: 10
Percentage of Correctly Classified Dog Images: 100.0
Percentage of Correctly Classified Not-a-Dog Images: 100.0
Percentage of Correctly Identified Dog Breeds: 93.33333333333333
Percentage of Label Matches: 87.5
```

Figure 4. Results for VGG.

In terms of timing, the obtained results are.

CNN Model Architecture	**Time (hh:mm:ss)**
ALEXNET	00:00:12
RESNET	00:00:17
VGG	00:00:49

Considering uniquely the results, the VGG architecture is the best.

Considering also the timing performances, the RESNET architecture is good enough. It takes almost 3 times less to execute than VGG and it is not so bad in terms of performances for identification.

Choosing the best will also need to consider the size of the images to analyse and the possibility of manually check discrepancies in labels, for example.

When checking the results for the uplodaded images we can see two points.

1- In terms of timings the tendency is the same, T(ALEXNET) < T(RESNET) < T(VGG).
2- Identification and classification is clearly better for RESNET as seen in the images below, being this one the best considering also the timing.

```
*** Results Summary for CNN Model Architecture:  ALEXNET ***
Number of Images: 4
Number of Dog Images: 2
Number of Not-a-Dog Images: 2
Percentage of Correctly Classified Dog Images: 100.0
Percentage of Correctly Classified Not-a-Dog Images: 100.0
Percentage of Correctly Identified Dog Breeds: 50.0
Percentage of Label Matches: 50.0

** Total Elapsed Runtime: 0:0:1
```

Figure 5. Results for ALEXNET.

```
*** Results Summary for CNN Model Architecture:  RESNET ***
Number of Images: 4
Number of Dog Images: 2
Number of Not-a-Dog Images: 2
Percentage of Correctly Classified Dog Images: 100.0
Percentage of Correctly Classified Not-a-Dog Images: 100.0
Percentage of Correctly Identified Dog Breeds: 100.0
Percentage of Label Matches: 75.0

** Total Elapsed Runtime: 0:0:2
```

Figure 6. Results for RESNET.

```
*** Results Summary for CNN Model Architecture:  VGG ***
Number of Images: 4
Number of Dog Images: 2
Number of Not-a-Dog Images: 2
Percentage of Correctly Classified Dog Images: 100.0
Percentage of Correctly Classified Not-a-Dog Images: 100.0
Percentage of Correctly Identified Dog Breeds: 50.0
Percentage of Label Matches: 50.0

** Total Elapsed Runtime: 0:0:6
```

Figure 7. Results for VGG