# [DL] [Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning](https://www.coursera.org/learn/introduction-tensorflow/home/welcome) [Week 3](https://www.coursera.org/learn/introduction-tensorflow/home/week/3)

### How many nodes should there be in the output layer (in classification)?

# of output nodes = # of classes.

So that when you try to classify a sample, the model returns the probabilities/likelihood of that sample being in a certain class.

If I was classifying between a dog and cat, the prediction would return 2 numbers [0.2, 0.7]. In this case, we classify it as a cat because it has the highest probability of 0.7.

Input layer = shape of data

Output layer = shape of the desired output

### What is a convolution?

You know that image filter that can make everything blurry? Convolution is behind that. You can run a 3x3 filter through a 28x28 image and the resulting image would be a blurrier 28x28 image.

Convolution = elementwise multiplication of image and filter then summing them all up. Then that sum is selected to replace a pixel’s place.

Convolution is practically pixel transformation.

### What is pooling?

Max pooling is choosing the largest pixel value within a frame (like 3x3 frame).

It can also make the image smaller.