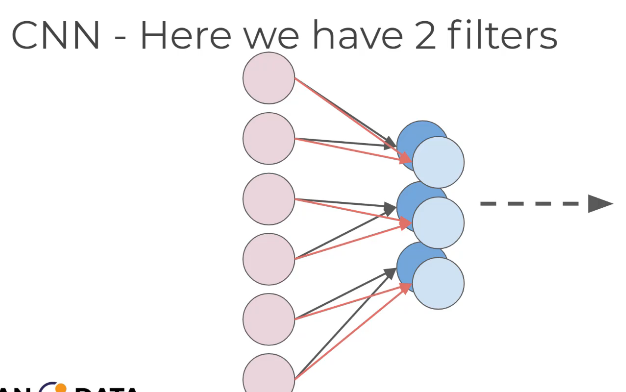
## Image filters

## Convolutional Layers

### What is so special about CNNs vs ANNs?

They’re much better at analysing images because they give you spatial information.

They also only connect to a local neuron.

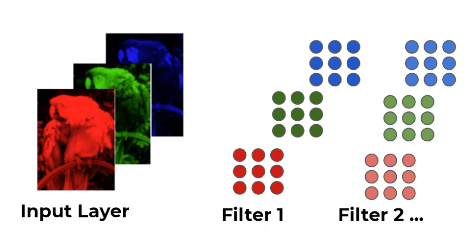


### What is the stride length?

The step size an image filter is applied

### Why is it called a convolution layer?

Because in order to apply an imaging filter on a 3 channel image, there needs to be 3 2-dimensional imaging filters. The 3 filters are layers of a convolution matrix.



## Pooling layers

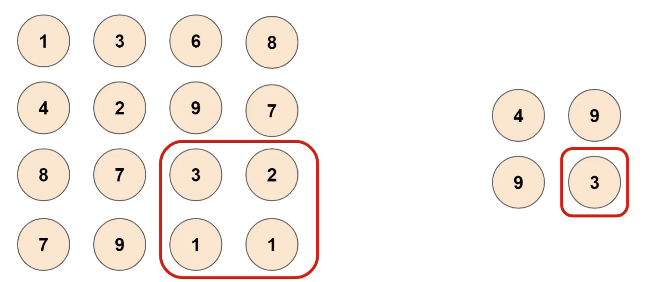
### What are pooling layers called sometimes?

Subsampling or down sampling layers

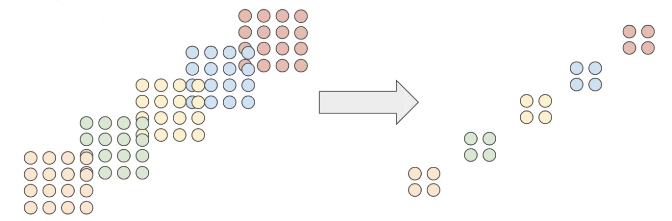
### Why do we use pooling layers?

To decrease the number of parameters that need to be used.

### How is it done?



This is max pooling, but average pooling is possible too. This is a kernel of 2x2 and a stride of 2.



### What is another way of speeding up the network?

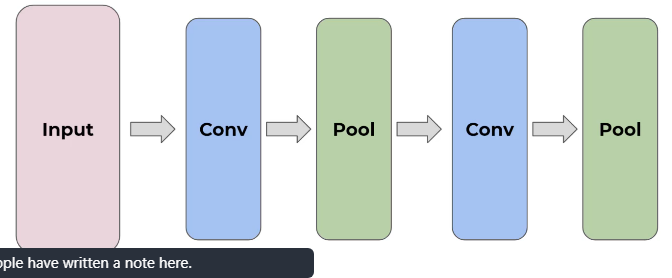
Dropout

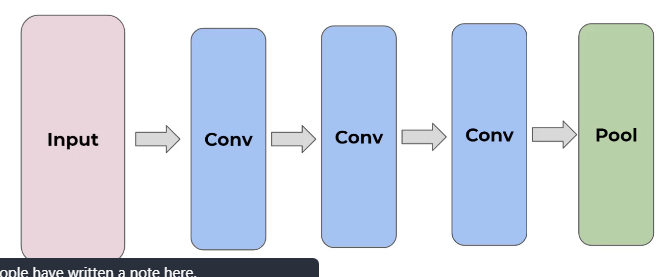
### How does it work?

Units are randomly dropped, along with their connections.

### Does this allow an infinite configuration between convolution and pooling layers?

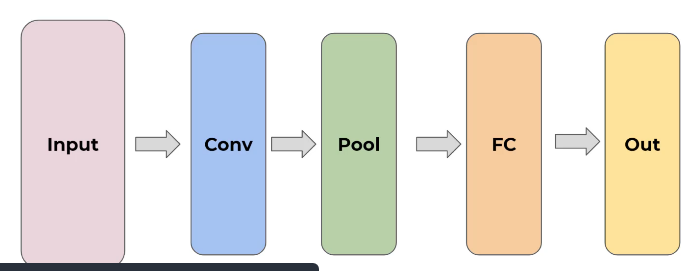
Yes





### What layer must be inserted before the output layer?

A Fully Connected layer.



## CNN on MNIST

### What activation function should be used for your output layer when you want to output multiple classes?

A softmax function

### What are the parameters of the model are set values based on your data?



### What are the parameters of the model that you can play and experiment with to get the best output?

