Exercise 4 Optional : Review Questions

1. What is the difference between a Dense and a Conv2D layer in Keras ?
   1. Dens: fully connected layer; Conv2d: convolutional neural network layer which uses different filters, sizes etc…
2. In CNN, explain what it means to “preserve the spatial structure” ?
   1. It depends on the filter size or the strides so with preserve the spatial structure you want to have at the end the same dimension like the input
3. In CNN, explain the different operations taking place when performing a convolution of a filter on an input, e.g. an image. How is the filter defined in terms of hyper-parameters?
   1. The filter has different width, length and depth. Than moving around how many “steps” -> strides, and if you want to preserve the input dimension with padding

1. Define what is meant by receptive field and activation map.
   1. The filter moves through the image and at some places (receptive fields) it will be activated and crates the activation map
2. Explain the effect of a given stride or zero-padding value.
   1. Stride are how many steps you take if you just go to the next pixel or overjump the pixel etc… P = 0 you don’t want to add an Adonal Zero frame on it
3. For a given configuration of a convolution layer, compute the number of parameters (weights, bias).
   1. Cov2d(32,kernelsize = 3, strides = 1, padding = “same”, input shape= (28,28,1))  
      weights: 3\*3\*32; bias: 32
4. Define what is a max pooling layer and what is its role in a CNN architecture.
   1. From the activation max it takes the highest value from the square depends on the maxpooling size…