Exercise ABC: Submission Required!

Use the necessary formulae for the calculations below.

1. What will be the feature map dimension for the following:

Image (5X5)   Kernel/Filter (3X3)

    Stride = 1

2. You are going to perform the "same" padding to the above input image. For that, calculate how many pixels you need to add to the input image.

3. Calculate the dimension of the newly padded image.

4. Take the following values:

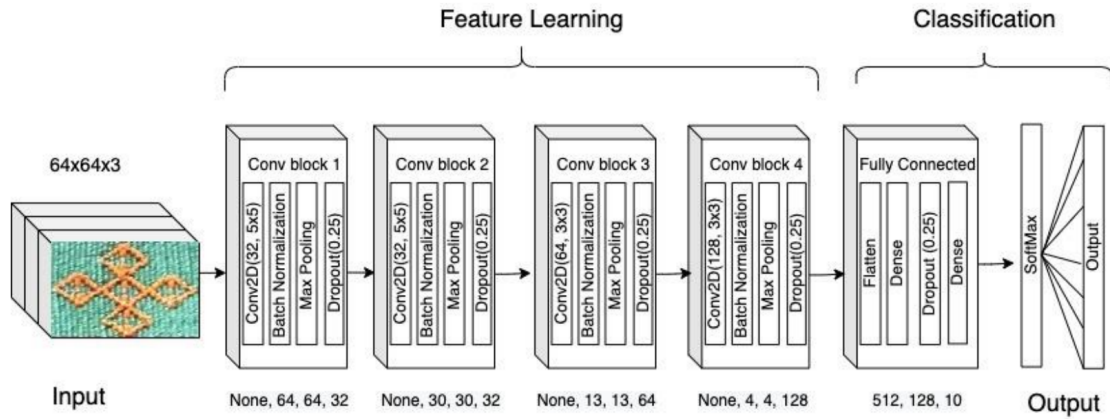   *Input = 5x5*

    kernel size= 3x3

    Stride = 1,

    Padding = use the value retrieved in question (2)

    Calculate the output shape for the feature map.

5. Refer to the Convolutional Neural Network and its summary given below. Calculate the parameters in each CNN layer and fill the Parameter column in the table. Also, calculate the total number of parameters.

    CNN Architecture:

Model Summary:

Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 64, 64, 32)	
batch_normalization (BatchNormalization)	(None, 64, 64, 32)	
max_pooling2d (MaxPooling2D)	(None, 32, 32, 32)	
conv2d_1 (Conv2D)	(None, 32, 32, 32)	
batch_normalization_1 (BatchNormalization)	(None, 32, 32, 32)	
max_pooling2d_1 (MaxPooling 2D)	(None, 16, 16, 32)	
conv2d_2 (Conv2D)	(None, 16, 16, 64)	
batch_normalization_2 (BatchNormalization)	(None, 16, 16, 64)	
max_pooling2d_2 (MaxPooling 2D)	(None, 8, 8, 64)	
conv2d_3 (Conv2D)	(None, 8, 8, 64)	
batch_normalization_3 (BatchNormalization)	(None, 8, 8, 64)	
max_pooling2d_3 (MaxPooling 2D)	(None, 4, 4, 64)	
flatten (Flatten)	(None, 1024)	
dense (Dense)	(None, 128)	
dense_1 (Dense)	(None, 10)	
Total params:		