

حل سوالات كوييز دوم

١.

For convolution:

$$\text{Output size} = \frac{\text{Input size} - \text{Filter size} + 2 \times \text{Padding}}{\text{Stride}} + 1$$

For pooling:

$$\text{Output size} = \frac{\text{Input size} - \text{Pooling size}}{\text{Stride}} + 1$$

Convolutional layer parameters:

$$\text{Parameters} = (\text{Filter size} \times \text{Filter size} \times \text{Input depth} + 1) \times \text{Number of filters}$$

Fc layer parameters:

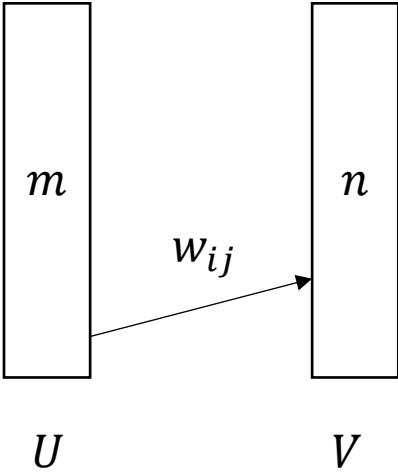
If you have a Flatten layer followed by an FC layer with N neurons, and the flattened input has size M , then the number of parameters (P) in the FC layer is given by:

$$P = M \times N + N$$

Layers	Activation volume dimensions	Number of parameters
Input	32*32*3	0
Conv3-8	32*32*8	$(3*3*3+1)*8$
Leaky Relu	32*32*8	0
Pool-2	16*16*8	0
BatchNorm	16*16*8	$2(\alpha, \beta)*8$
Conv3-16	16*16*16	$(3*3*8+1)*16$
Leaky Relu	16*16*16	0

Pool-2	8*8*16	0
Flatten	1024	0
FC-10	10	1024*10+10

۲.



$$u_i = \tanh (x)$$

$$v_j = sigmoid(u_i w_{ij})$$

$$\frac{\partial v_j}{\partial u_i} = v_j w_{ij} (1 - v_j)$$

$$\acute{\partial}(x) = \partial(x)(1 - \partial(x))$$