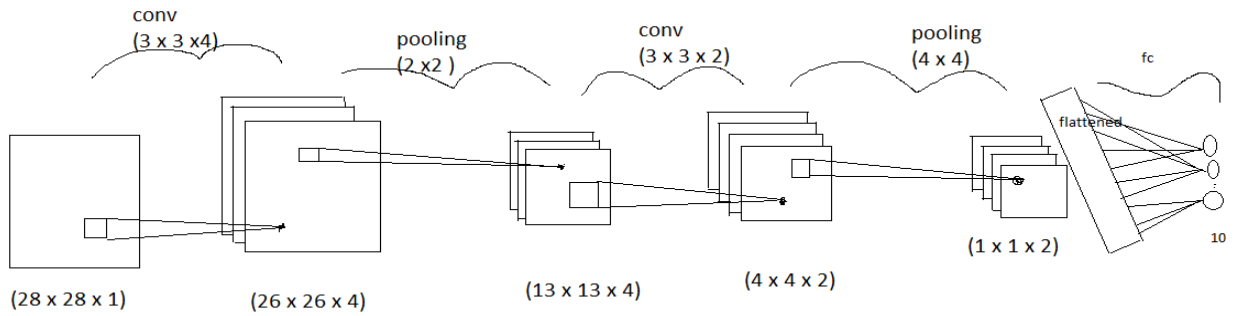


Architecture



Input [batch x 28 x 28 x 1]

Conv : $(n + 2p - f) / s + 1 \times (n + 2p - f) / s + 1 \times \text{cout}$

$F = 3, s = 1, p = 0$ (valid padding is no padding), out = 4

Conv 1 = $(26 \times 26 \times 4)$

Pool : $(n - f) / s + 1 \times (n - f) / s + 1 \times \text{nc}$

$F = 2, s = 2$

= $(13 \times 13 \times 4)$

Conv2

$F = 3, s = 3, p = 0, \text{out} = 2$

Conv2 = $(4 \times 4 \times 2)$

Pool2

$F = 4, s = 4$

Pool 2 = $(1 \times 1 \times 2)$

Analysis: for the given architecture

number of items in mnist_dataset: 60000

number of items in mnist_train_dataset: 40000

number of items in mnist_valid_dataset: 20000

number of items in mnist_test_dataset: 10000

for batch[64, 1, 28, 28]

torch.Size([64, 4, 13, 13])

torch.Size([64, 2, 1, 1])

torch.Size([64, 10])

Test accuracy: 0.1135

""" changing inputs """

For batch[64,1,28,28]

For conv1 in_channels=1, out_channels=32,kernel_size=5,stride=1 ,padding=2))

For pool1 1 kernel_size=2

torch.Size([64, 32, 14, 14])

for conv 2: in_channels=32, out_channels=64,kernel_size=5 ,padding=2

for pool 2: kernel_size=2

torch.Size([64, 64, 7, 7])

fc1 : 3136 ,1024

torch.Size([4, 1024])

fc2 : 1024, 10

torch.Size([4, 10])

Test accuracy: 0.1018