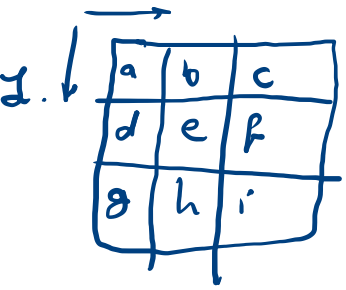
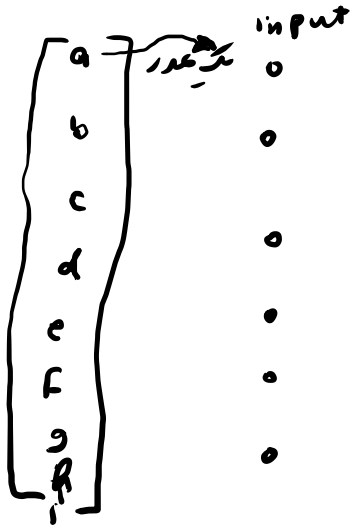
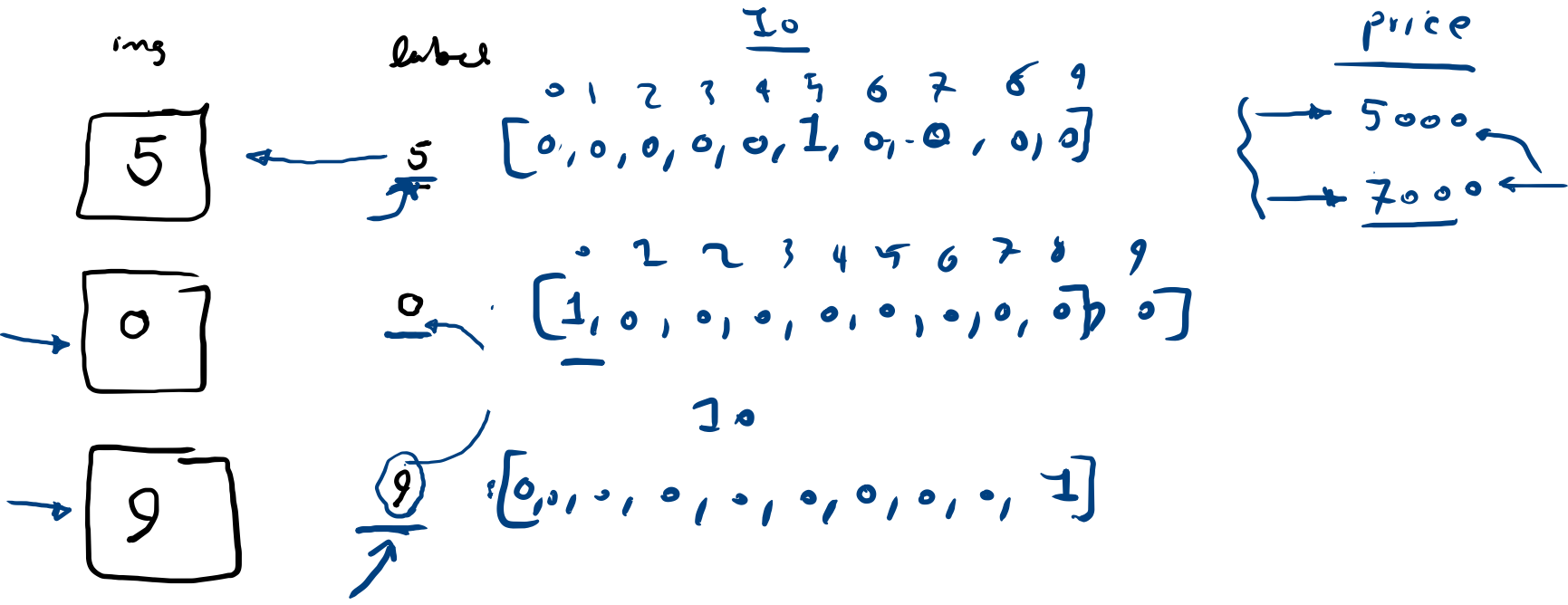
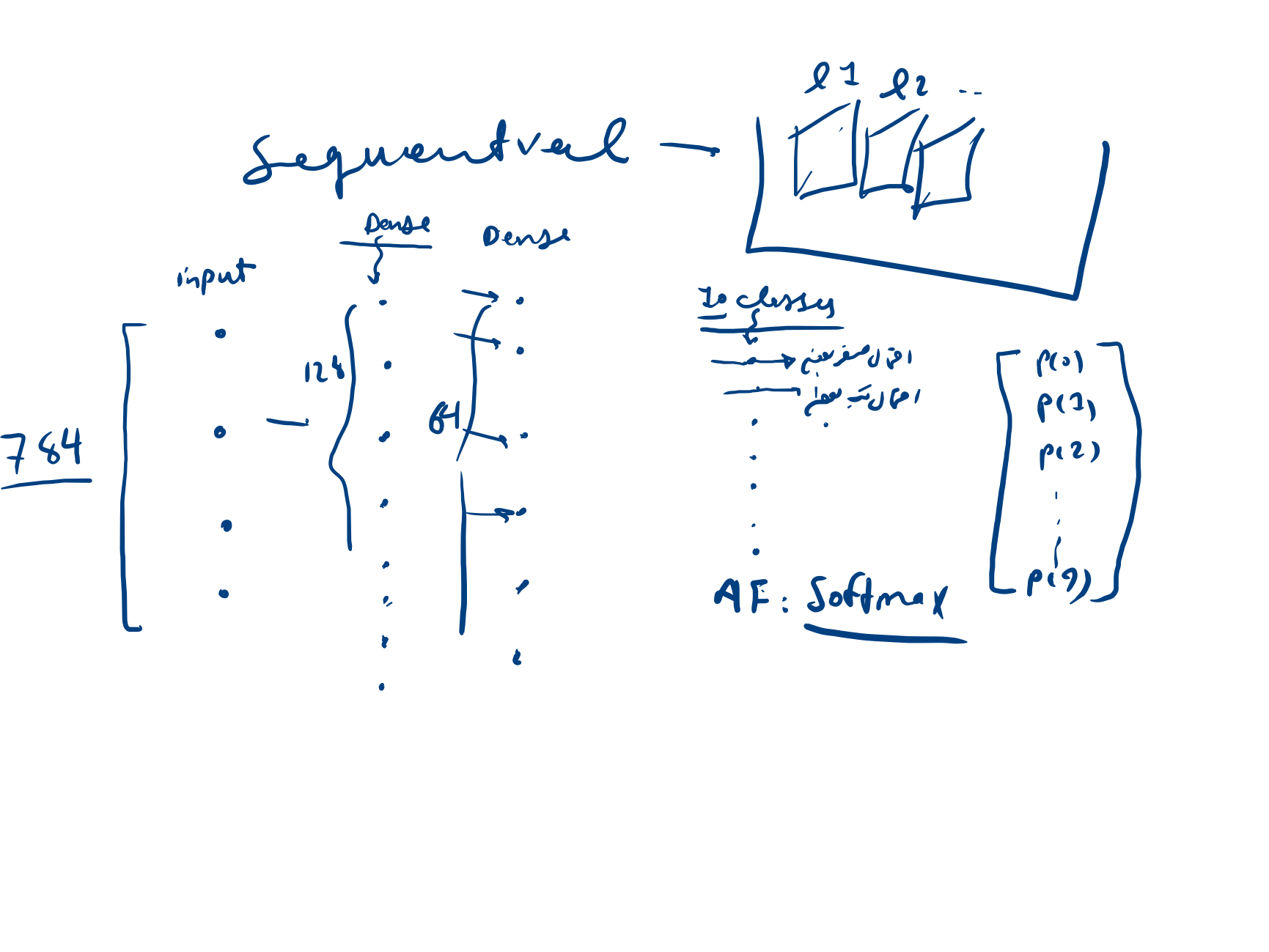


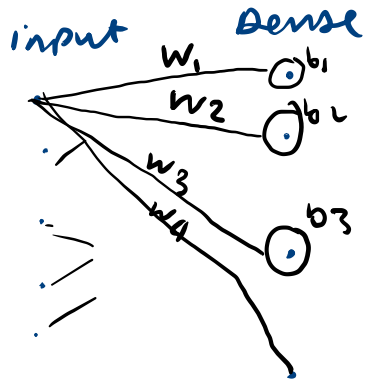
Flattening (1D vector) → [a, b, c, d, e, f, g, h, i]

why? →




img
label
I0
price
0 1 2 3 4 5 6 7 8 9
[0, 0, 0, 0, 0, 1, 0, 0, 0, 0]
5
5000
7000
0
9
[1, 0, 0, 0, 0, 0, 0, 0, 0, 0]
I0
[0, 0, 0, 0, 0, 0, 0, 0, 0, 1]


Sequential
l1 l2 ..
Dense
Dense
input
784
128
64
To classes
AF: Softmax
p(0)
p(1)
p(2)
p(9)



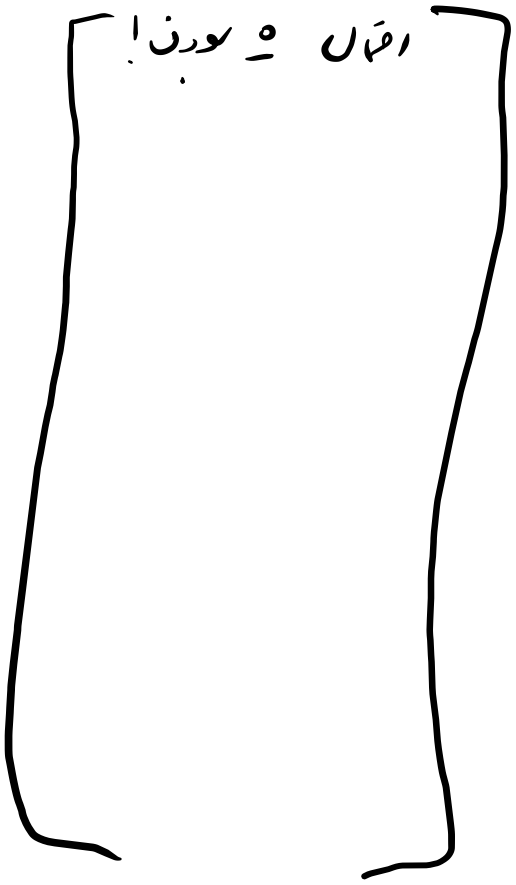
784 128

100480 → true

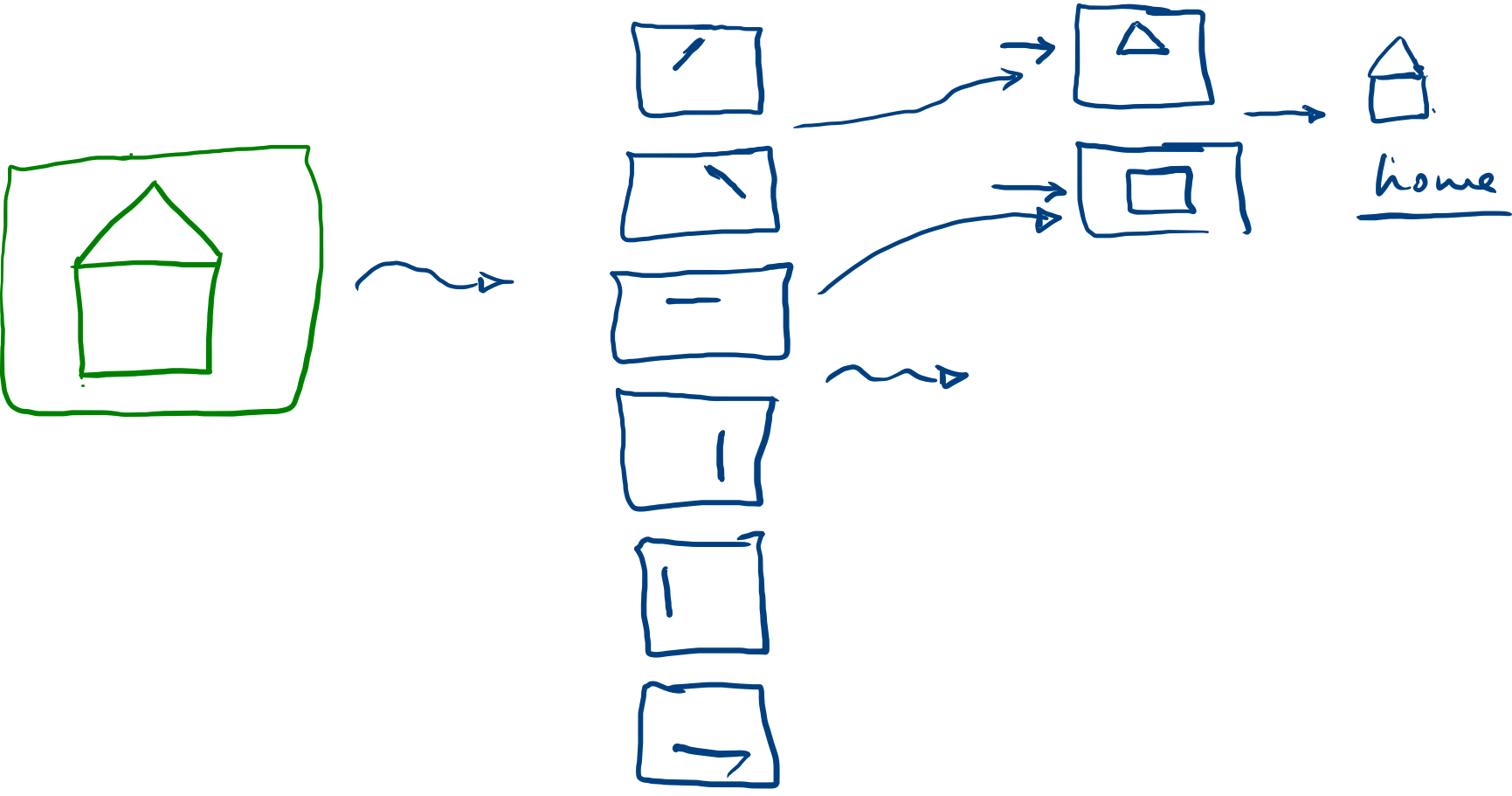
w: 128 x 784 = 100352

b: 128

100352 + 128 = 100480

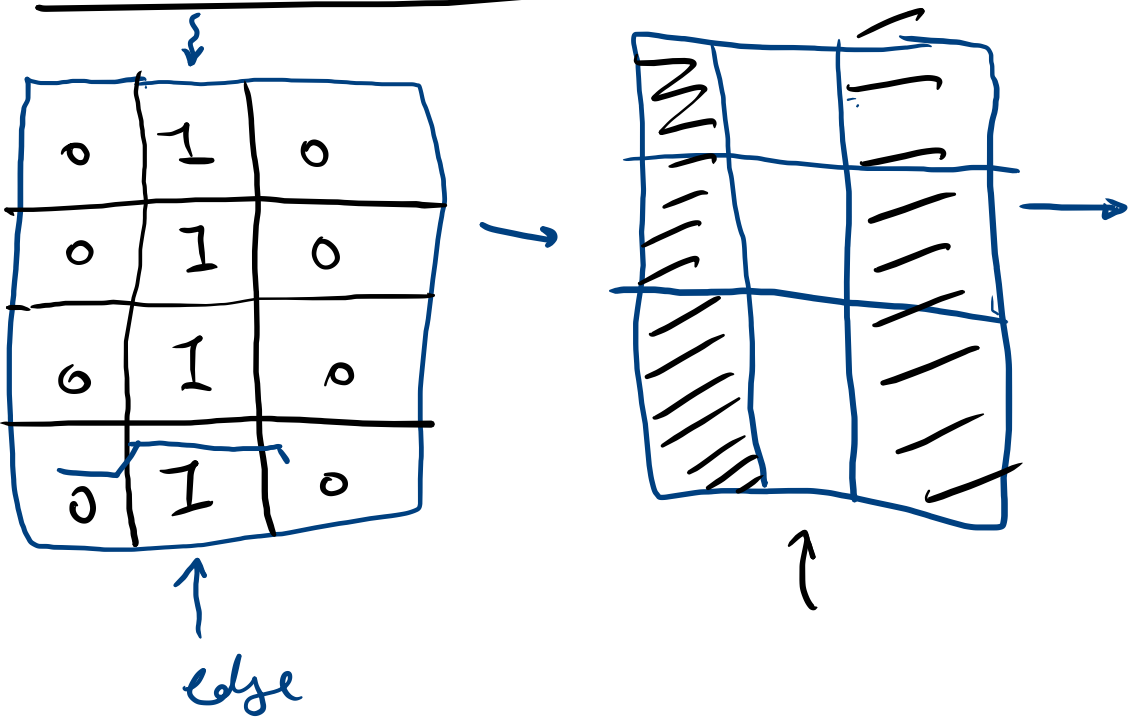


احتمال ۵ بودن!

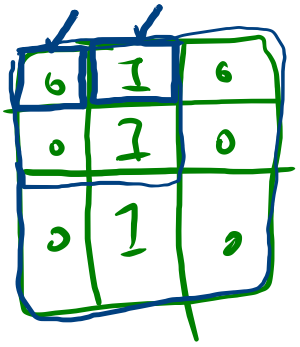


low level features !

Dense for Images



آیا با شبکه‌ی Dense
مسئله‌ها (یا پنجره‌ی دیگر)
تشخیص داده می‌شوند؟



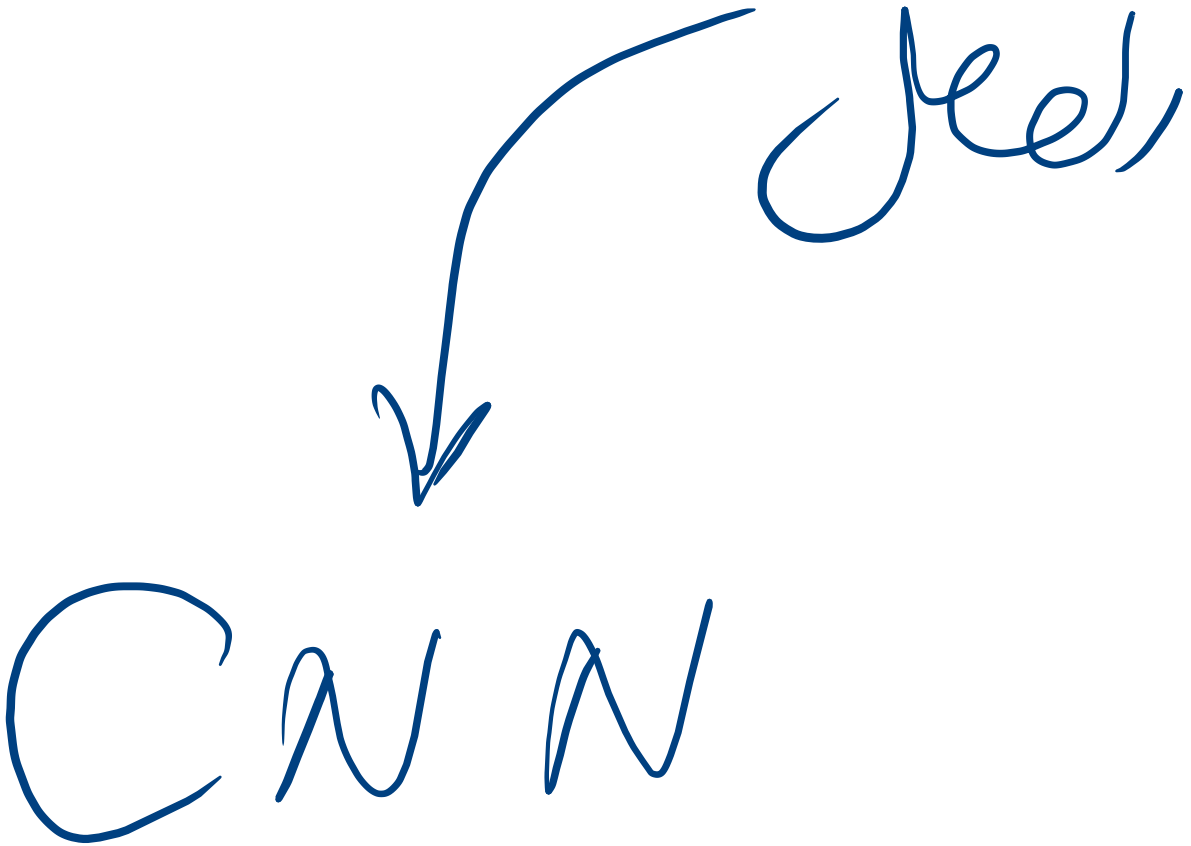
0	1	0
0	1	0
0	1	0

$\xrightarrow{\text{Dense}}$ Flatten $\rightarrow [0, \underline{1}, 0, 0, \underline{1}, 0, 0, \underline{1}, 0]$

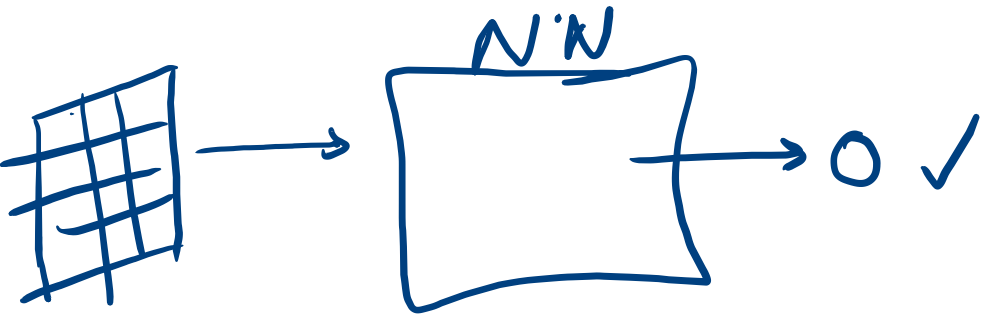
استخراج

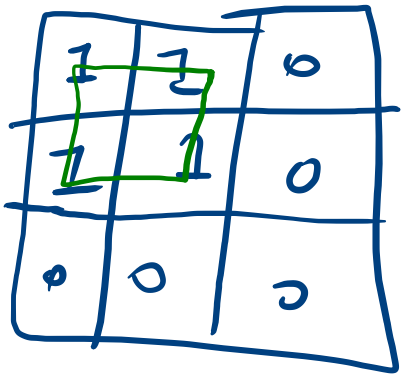
α خیلی از ~~ه~~ فیچرها در DL، مستلزم آنالیز پیکسها با همدیگر است!

α تنها فیچری که Dense از تصویر استخراج می‌کند، intensity پیکسهاست!

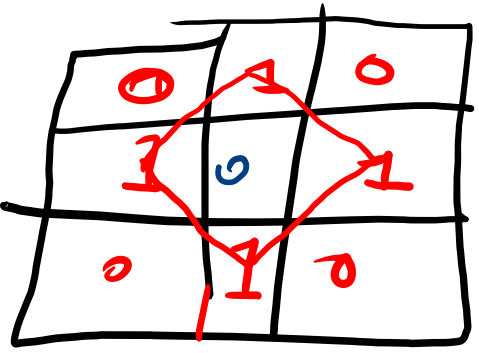

راصل
CNN

Convolutional neural network

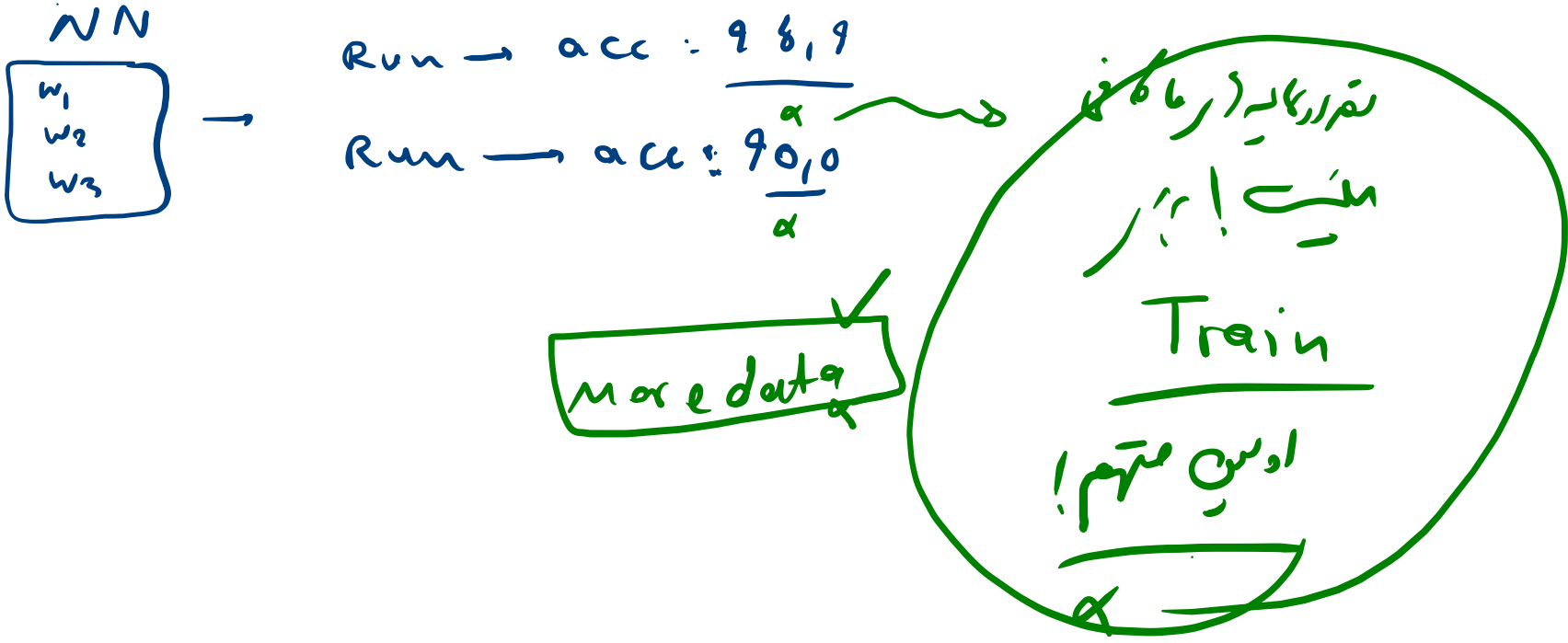




Dense-input = [1, 1, 0, 1, 1, 0, 0, 0, 0]



Dense-input = [0, 1, 0, 1, 0, 1, 0, 1, 0]


NN
w_1
w_2
w_3
Run → acc : 98,9
Run → acc : 90,0
more data
Train

End