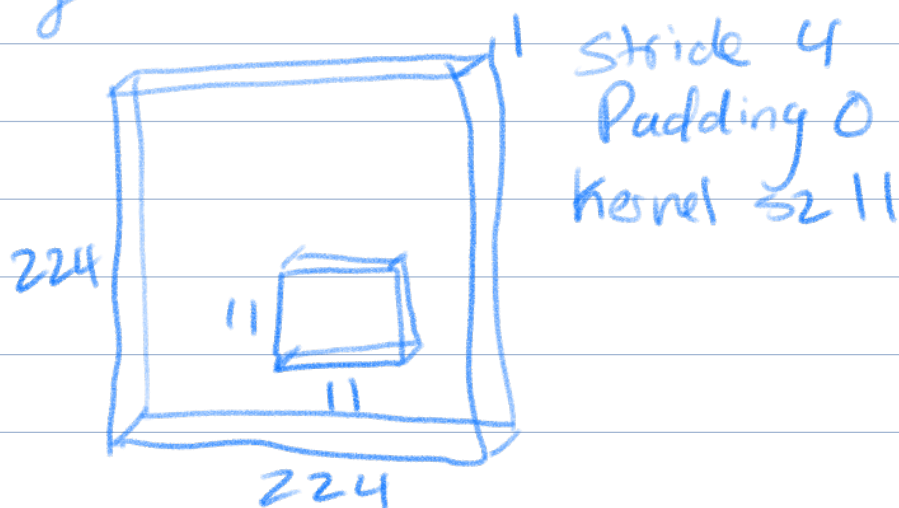


AlexNet Program 2

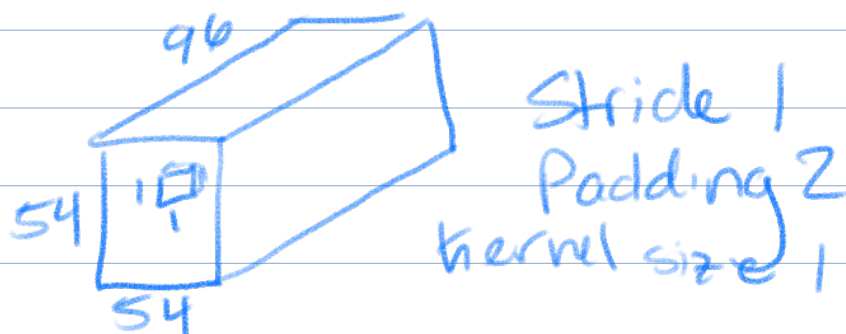
Diagrams

Layer 1:



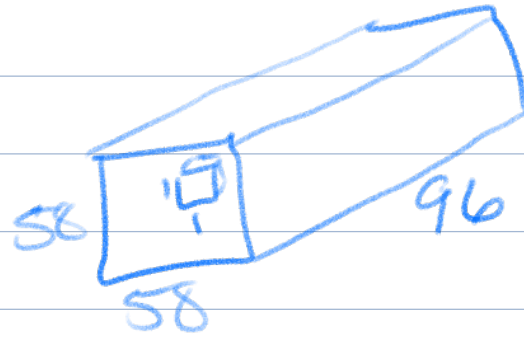
$$\text{Output size} = \lfloor (224 - 11 + 0) / 4 + 1 \rfloor = 54$$

Layer 2:



$$\text{Output size} = \lfloor (54 - 1 + 2 \cdot 2) / 1 + 1 \rfloor = 58$$

Layer 3:



Stride 1
Padding 0
kernel size 1

$$\text{Output size} = \lfloor (58 - 1 + 0) / 1 + 1 \rfloor \\ = \lfloor 57 + 1 \rfloor = 58$$

Layer 3 Max Pool:



Stride 2
Padding 0
kernel size 3

$$\text{Output size} = \lfloor (58 - 3 + 0) / 2 + 1 \rfloor \\ = \lfloor 28.5 \rfloor = 28$$

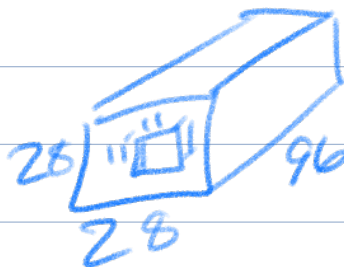
e.g.

10	2	4
6	5	0
3	9	7

 \rightarrow

10

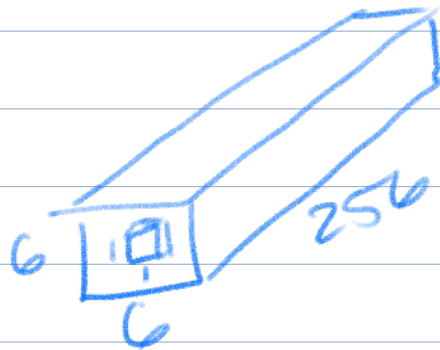
Layer 2



Stride 4
padding 2
kernel size 11

$$\text{Output size} = \lfloor (28 - 11 + 4) / 4 + 1 \rfloor \\ = 6$$

Layer 5



Stride 1
padding 0
kernel size 1

$$\begin{aligned}\text{Output size} &= \lfloor (6 - 1 + 0) / 1 + 1 \rfloor \\ &= \lfloor 5 + 1 \rfloor = 6\end{aligned}$$

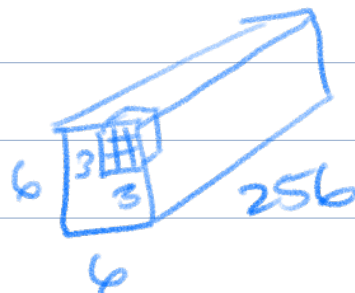
Layer 6



Stride 1
padding 0
kernel size 1

$$\begin{aligned}\text{Output size} &= \lfloor (6 - 1 + 0) / 1 + 1 \rfloor \\ &= 6\end{aligned}$$

Layer 6 MaxPool

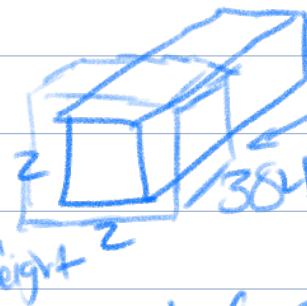


Stride 2
padding 0
kernel size 3

$$\begin{aligned}\text{Output size} &= \lfloor (6 - 3 + 0) / 2 + 1 \rfloor \\ &= \lfloor 2.5 \rfloor = 2\end{aligned}$$

Layer 7

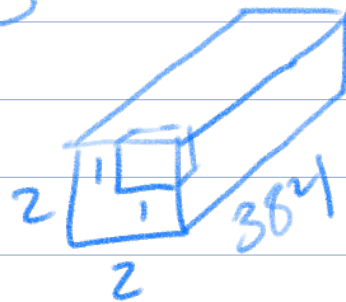
*kernel size
bigger than
data width
height



Stride 1
padding 1
kernel size 3

$$\text{Output size} = \lfloor (2 - 3 + 2) / 1 + 1 \rfloor = 2$$

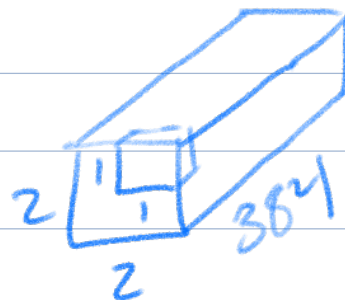
Layer 8



Stride 1
padding 0
kernel size 1

$$\text{Output size} = \lfloor (2 - 1 + 0) / 1 + 1 \rfloor = 2$$

Layer 9



Stride 1
padding 0
kernel size 1

$$\text{Output size} = 2$$

* Flatten dimensions of Layer 9
to $4096 \times 1 \times 1$

Layer 10 Fully Connected Linear



Input
is $2 \cdot 2 \cdot 384$

Output is 4096

Layer 11 Fully Connected Linear



Input is 4096
Output is 4096

Layer 12 Fully Connected Linear



Input is 4096
Output is 10

→ # of classes we are
testing for is 10