EQ: How do we perform 2D convolution in code?

Mr. Mina
12th Grade Computer Vision
9-12.CT.2, 9-12.CT.4, 9-12.DL.2

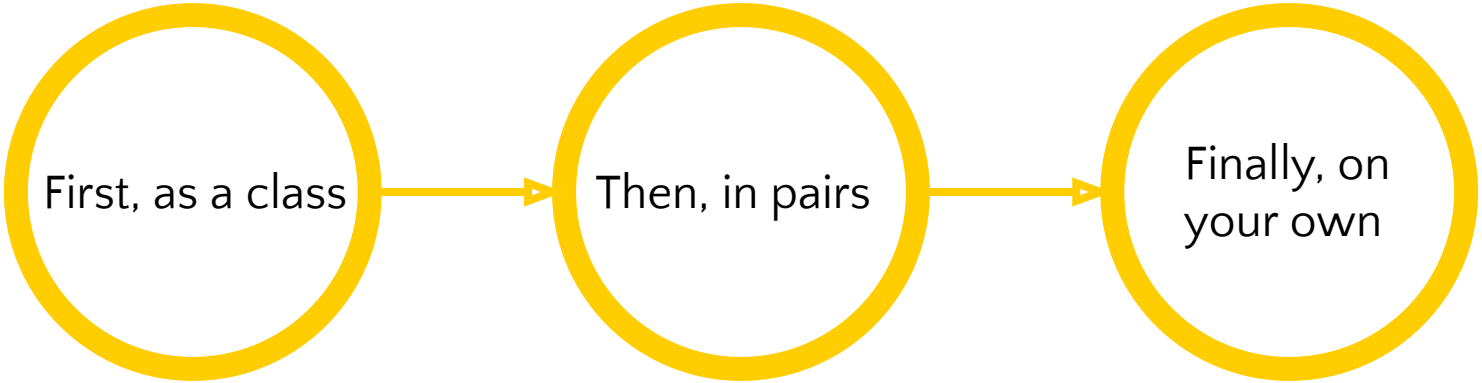
Lesson 03 - Convolution Code Along

Do Now

Fork the Lesson 03 Jupyter Notebook on Google Classroom and read the introduction. Be sure to tick which checkbox items you've completed

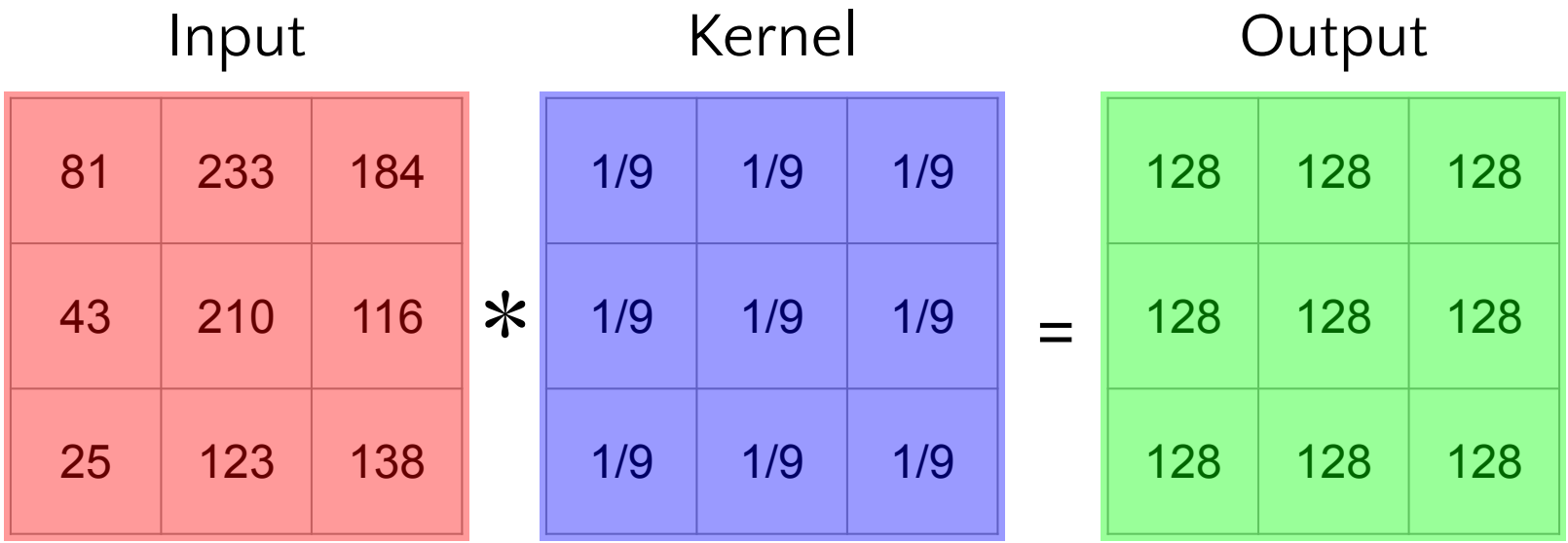
Today's agenda: convolution coding practice

Three start-to-finish convolution problems today:



Class convolution (Lesson 02)

Evaluate the following convolution using *circular padding* for the borders:



Pair convolution (Lesson 02)

Evaluate the following convolution using *zero padding* for the borders.

Protip: You and your partner can split the work and start at opposite ends

Input				Kernel				Output		
81	233	184	*	1/9	1/9	1/9	=	63	96	83
43	210	116		1/9	1/9	1/9		79	128	112
25	123	138		1/9	1/9	1/9		45	73	65

Solo convolution (Lesson 02)

Evaluate the following convolution using *zero padding* for the borders.

Input				Kernel				Output		
207	42	217	*	1/5	1/7	1/5	=	50	116	70
30	86	160		1/7	1/9	1/7		125	195	117
170	238	0		1/5	1/7	1/5		74	101	74

Homework

03_homework on Google Classroom (link)

Convert 02_homework into code like we did these class problems.