

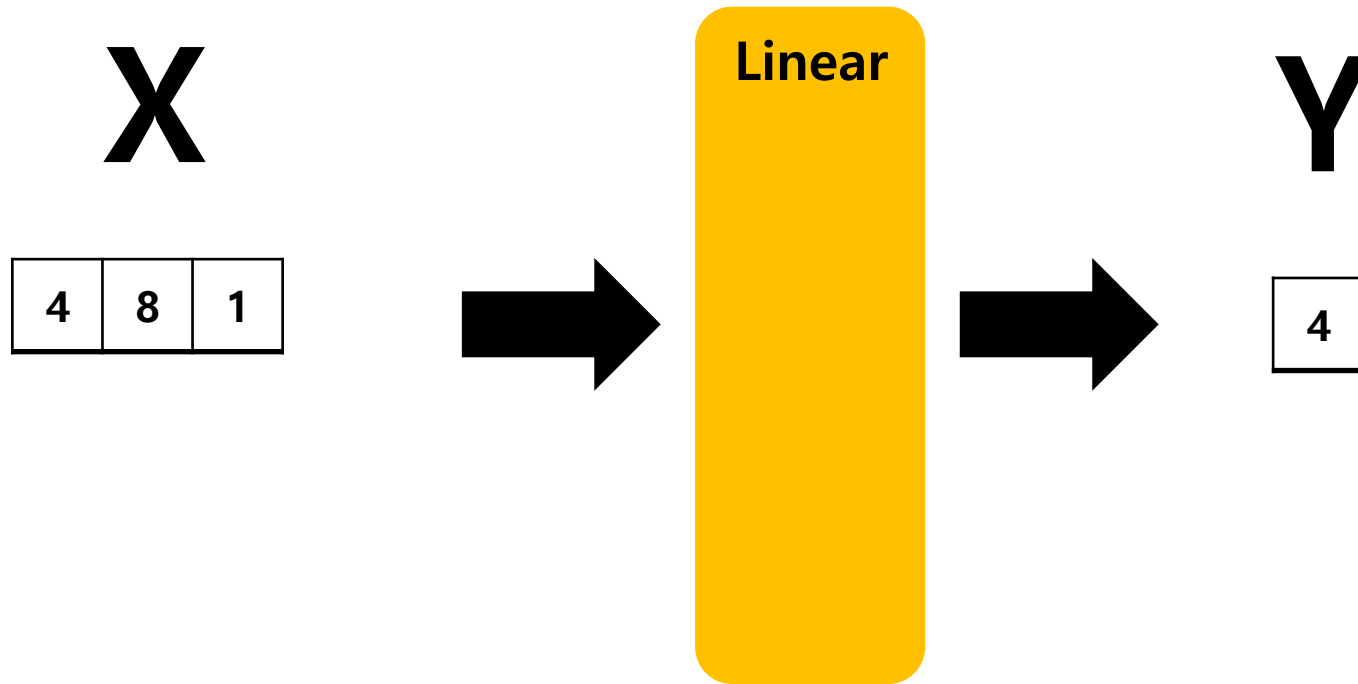
딥러닝 기초

강사 윤예빈

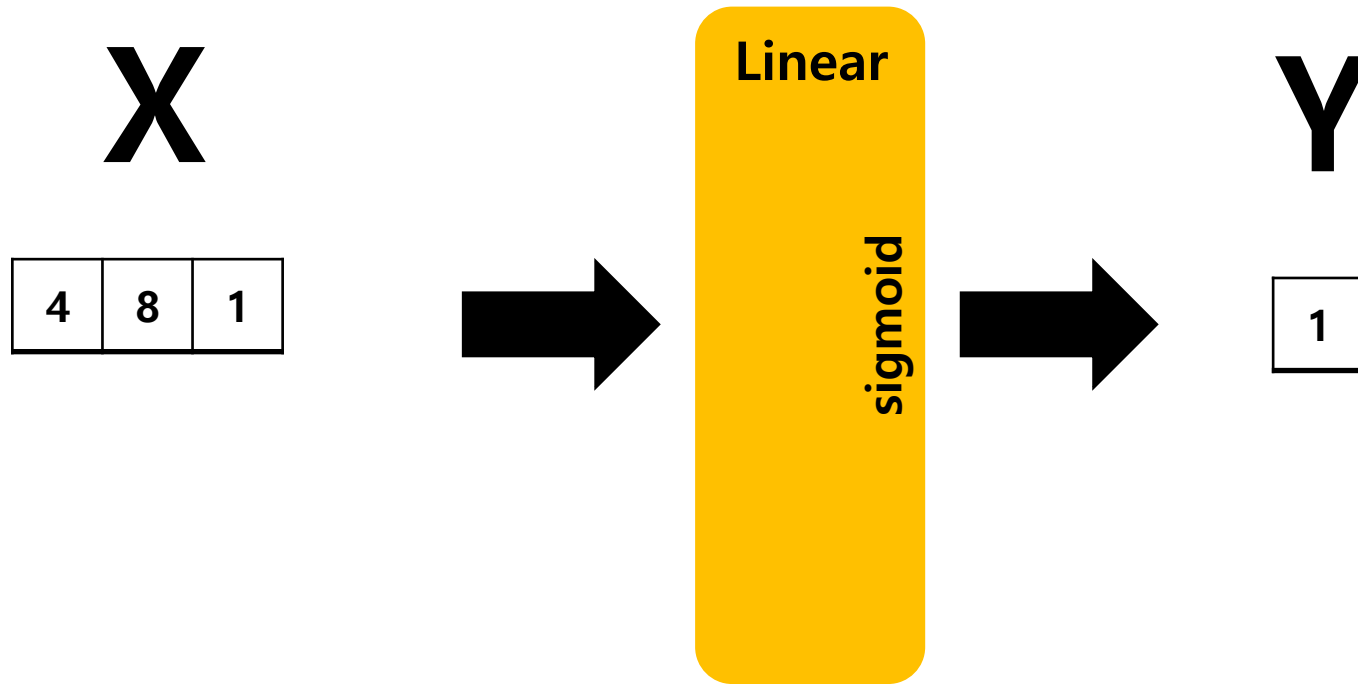
yebinyoun@gmail.com

<https://github.com/yebiny>

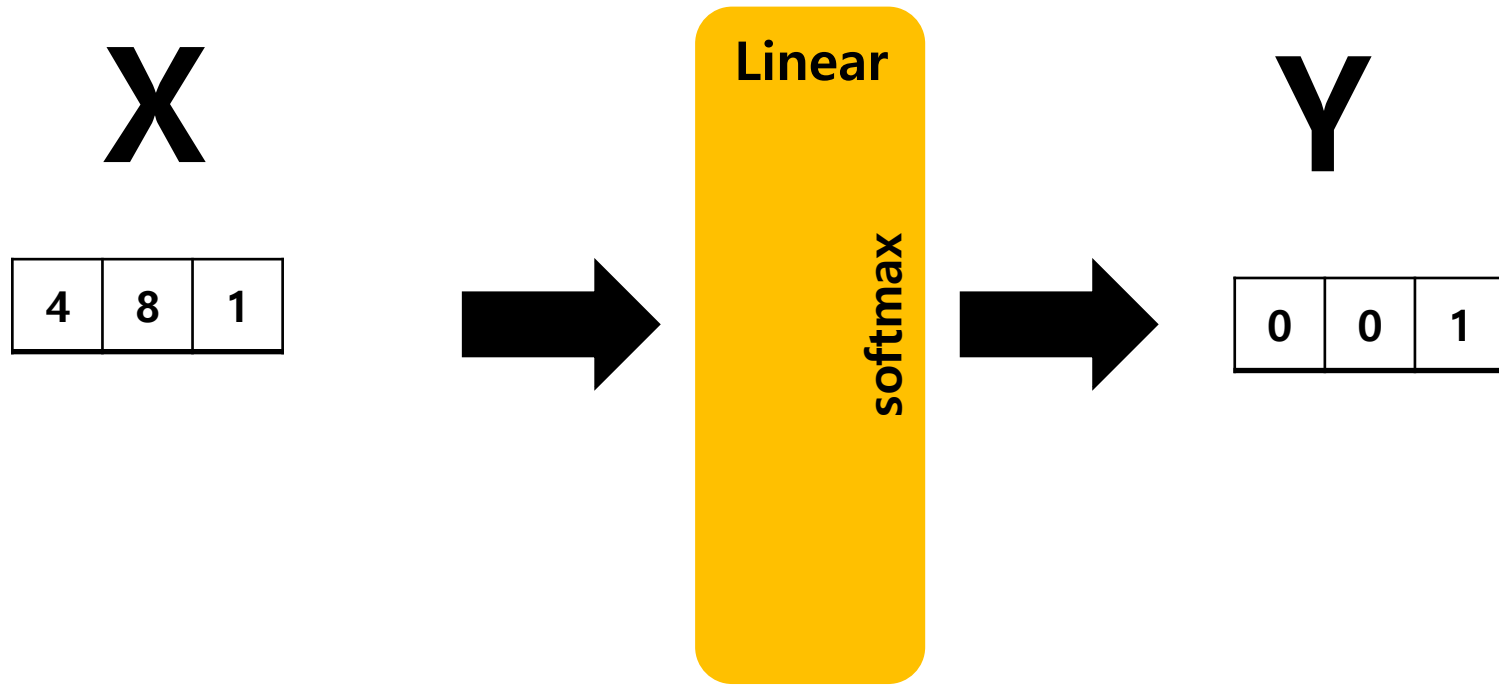
Linear regression



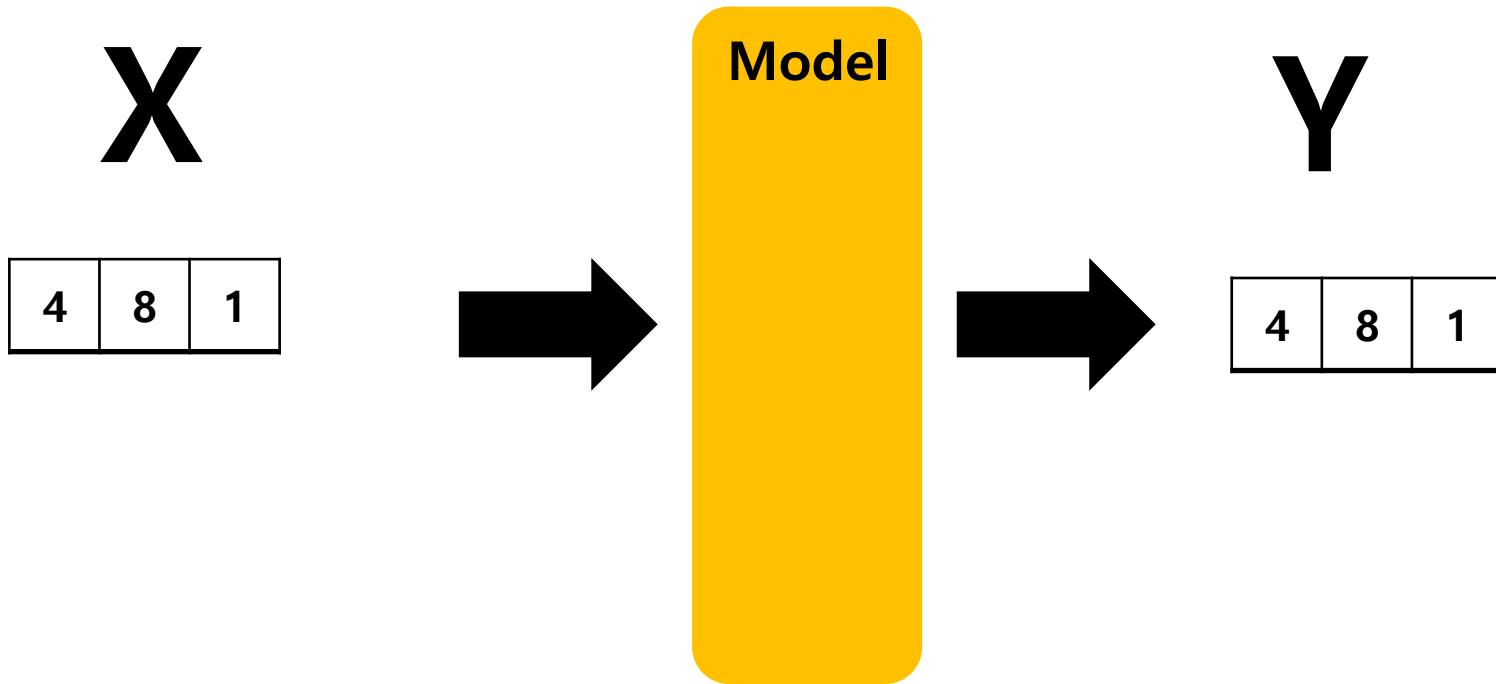
Logistic regression



Softmax regression



Model

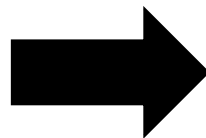


주가예측

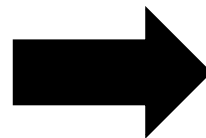


오늘 가격?

X



Model



Y

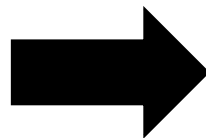


주가예측

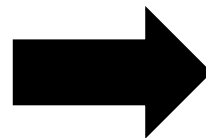
오늘 가격?

X

45	50	60		...		85
----	----	----	--	-----	--	----



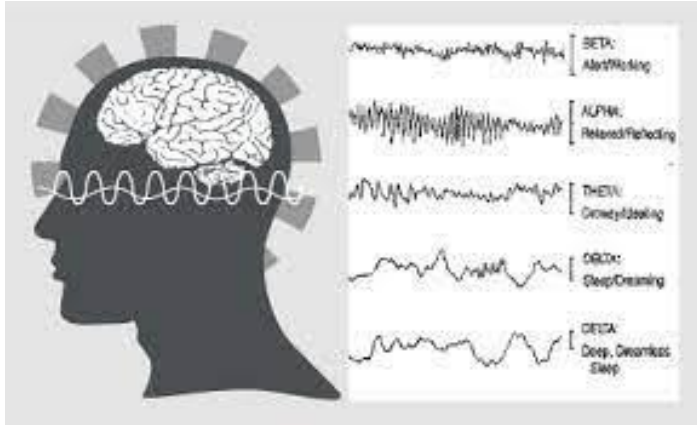
Model



Y

90

뇌파

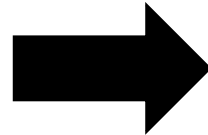
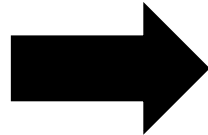


수면? 각성? 운동?

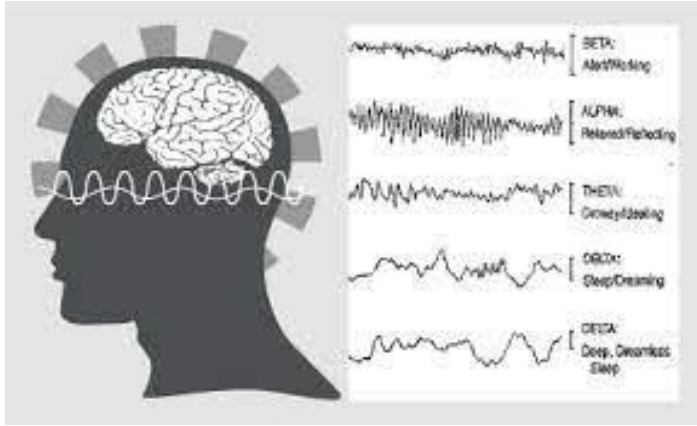
X

Model

Y



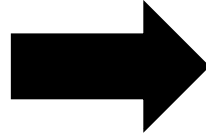
뇌파



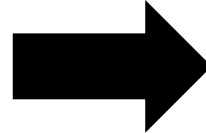
수면? 각성? 운동?

X

45	50	60		...		85
----	----	----	--	-----	--	----



Model



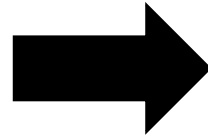
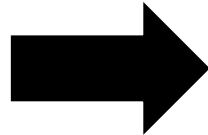
Y

0	0	1
---	---	---

자연어 처리

만나서 반갑습니다. 기계번역 → Nice to meet you
챗봇 → 저도 만나서 반가워요

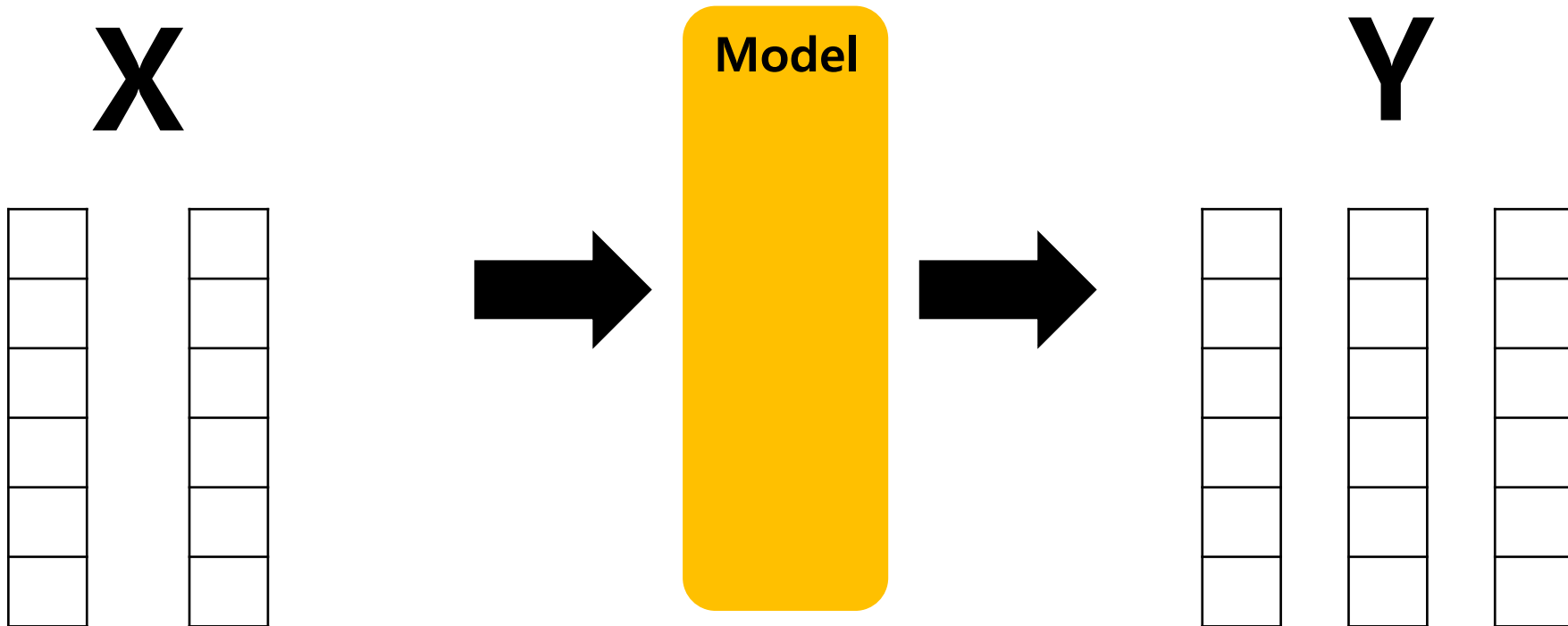
X



Y

자연어 처리

만나서 반갑습니다. 기계번역 → Nice to meet you
챗봇 → 저도 만나서 반가워요

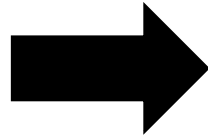


이미지 처리

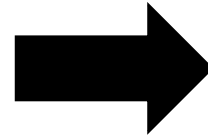


이미지분류 → 개? 고양이? 새? 자동차? ... ?

X



Model



Y

이미지 처리



이미지분류 → 개? 고양이? 새? 자동차? ... ?

X

3	0	1	2	7	4	
1	5	8	9	3	1	
2	7	2	5	1	3	
0	1	3	1	7	8	
4	2	1	6	2	8	
2	4	5	2	3	9	

Model

Y

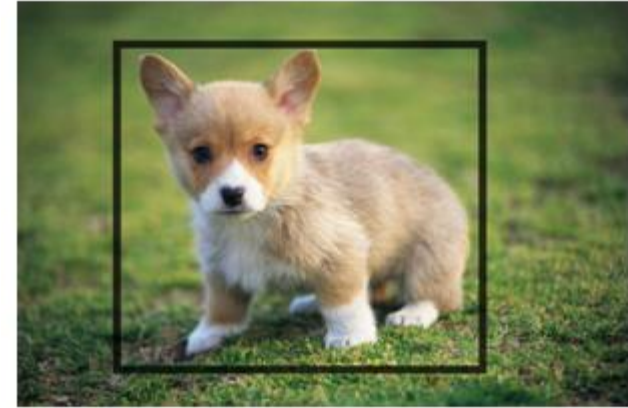
0
1
0
0
0
0

이미지 처리



X

객체검출



Y


Model

A small, fluffy Corgi puppy with tan and white fur is standing on a green lawn. The puppy has large, upright ears and is looking directly at the camera. The background is a soft-focus green lawn.

A small, fluffy, light brown and white puppy standing on green grass, framed by a black border.

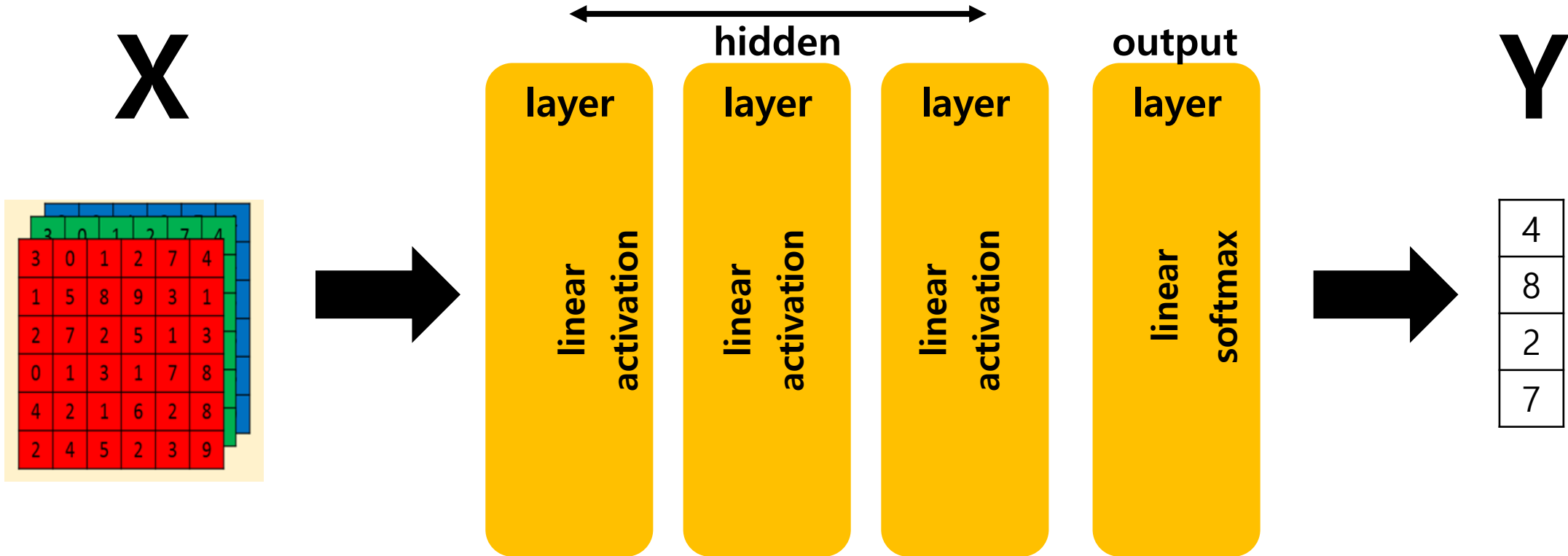
A 6x6 grid of numbers. The top-left 3x3 sub-grid is highlighted in green. The numbers in the grid are as follows:

3	0	1	2	7	4
1	5	8	9	3	1
2	7	2	5	1	3
0	1	3	1	7	8
4	2	1	6	2	8
2	4	5	2	3	9



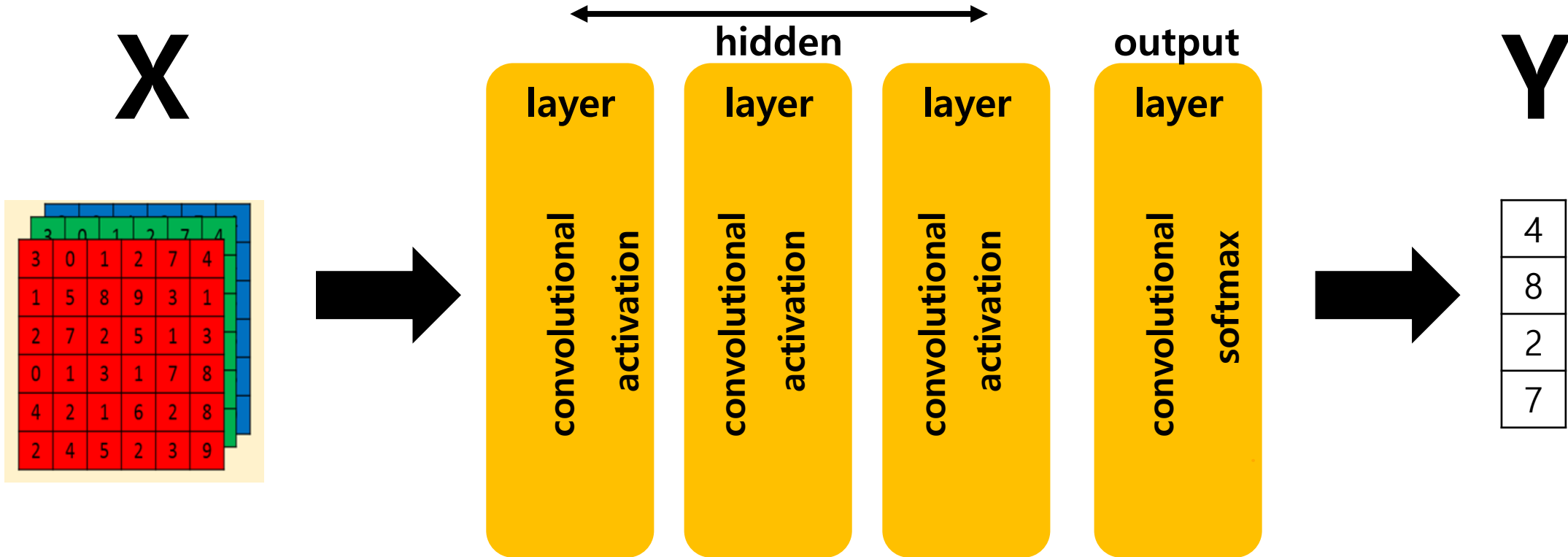
4
8
2
7

Deep Neural Network

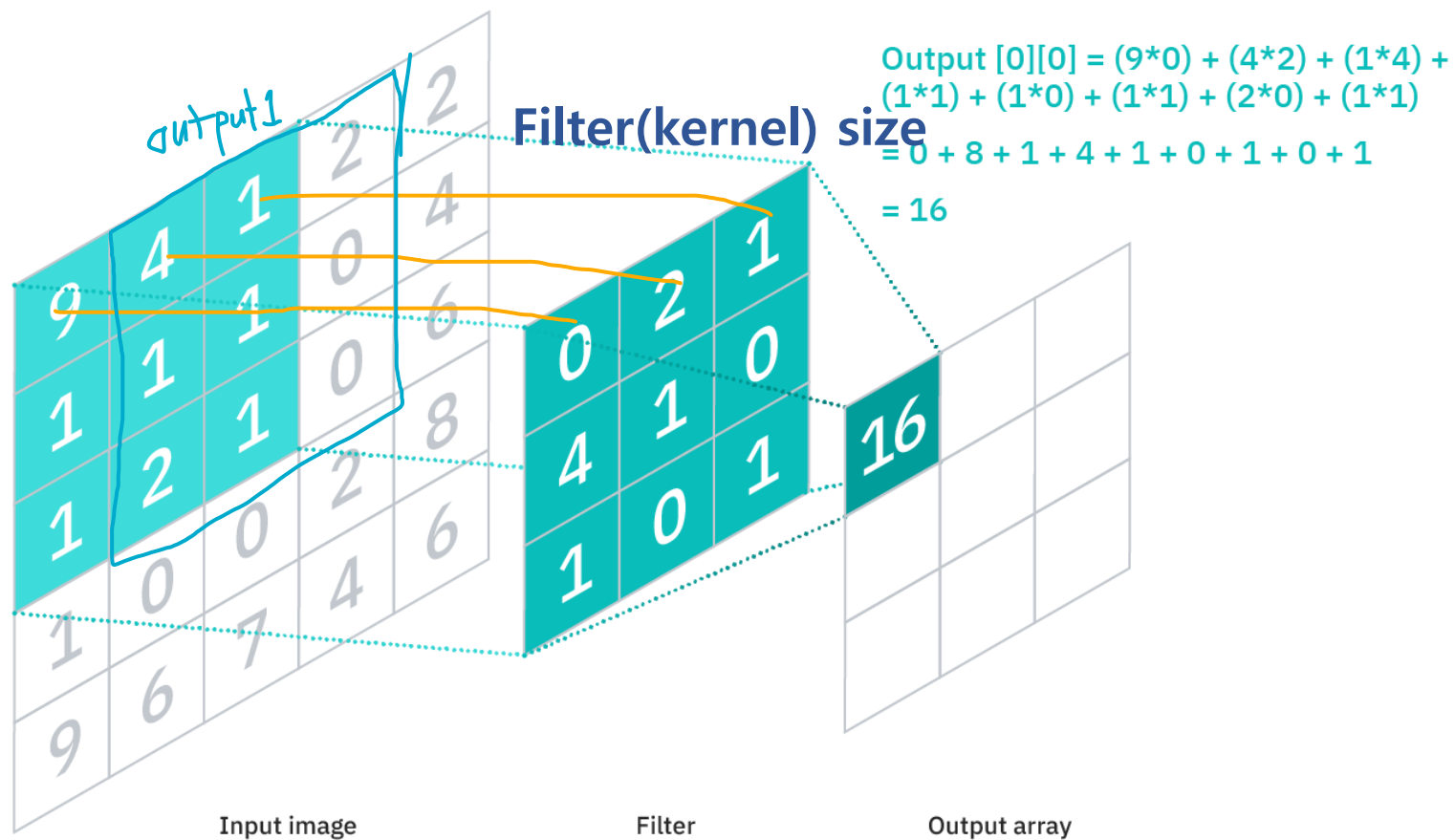


relu, selu.

Convolutional Neural Network



CNN 알고리즘



CNN 알고리즘

0	0	0	0	0	0
0	105	102	100	97	96
0	103	99	103	101	102
0	101	98	104	102	100
0	99	101	106	104	99
0	104	104	104	100	98

Image Matrix

Kernel Matrix

0	-1	0
-1	5	-1
0	-1	0

320				

Output Matrix

$$\begin{aligned} &0 * 0 + 0 * -1 + 0 * 0 \\ &+ 0 * -1 + 105 * 5 + 102 * -1 \\ &+ 0 * 0 + 103 * -1 + 99 * 0 = 320 \end{aligned}$$

**Convolution with horizontal and
vertical strides = 1**

Pooling

13	20	30	0
8	12	3	0
34	70	33	5
111	80	10	23

Activation Map

20	30
111	33

Max Pooling

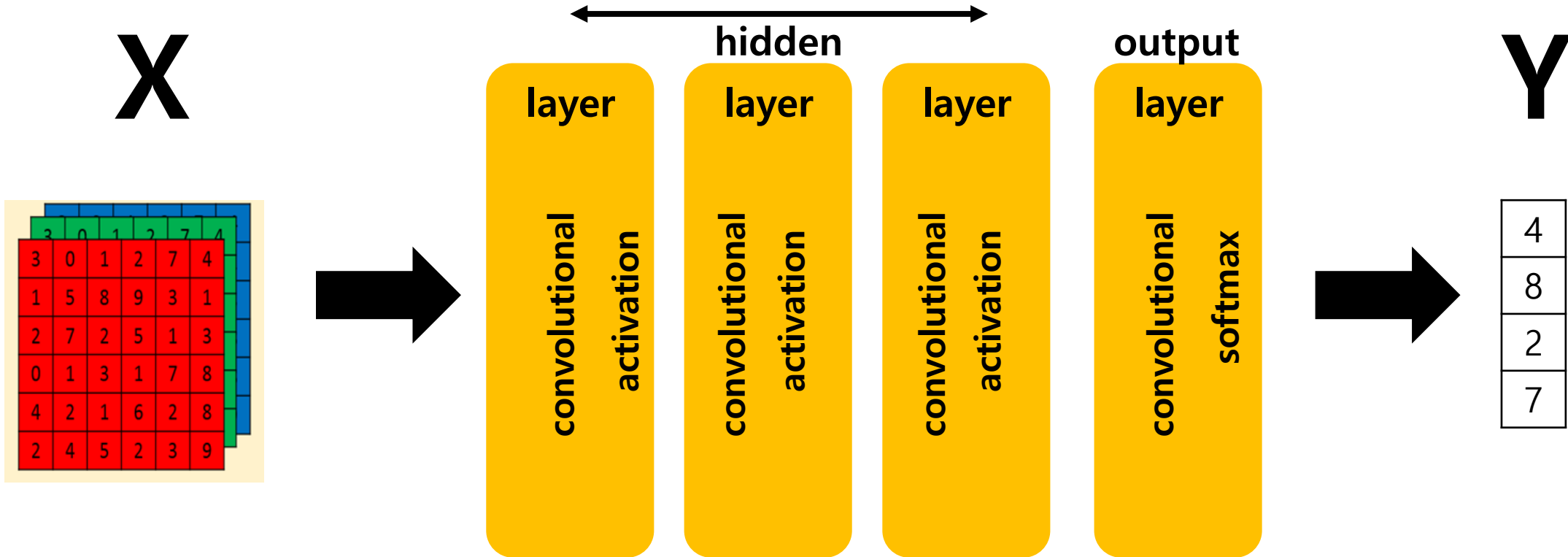
13	8
66	18

Average Pooling

8	0
34	5

Min Pooling

Convolutional Neural Network



모델 개발 과정

데이터

모델

모델 개발 과정

데이터

모델

모델 개발 과정

MNIST SOTA

데이터

데이터 수집, 가공, EDA, 데이터 전처리 ...

모델

모델 build, 학습, 결과

최적화

