Machine Learning 기초 이론부터 Azure ML Studio 사용 실전기

2. Machine Learning 알고리즘

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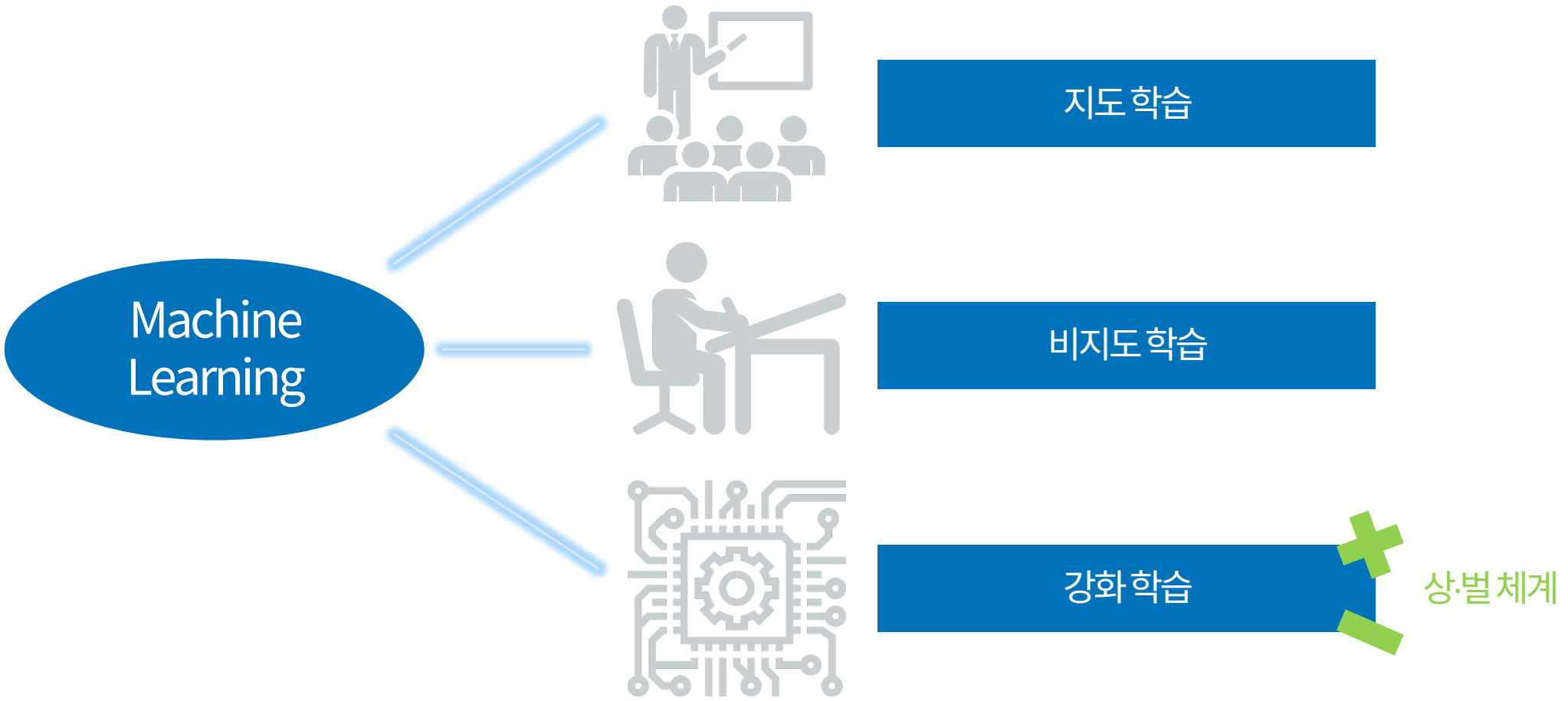
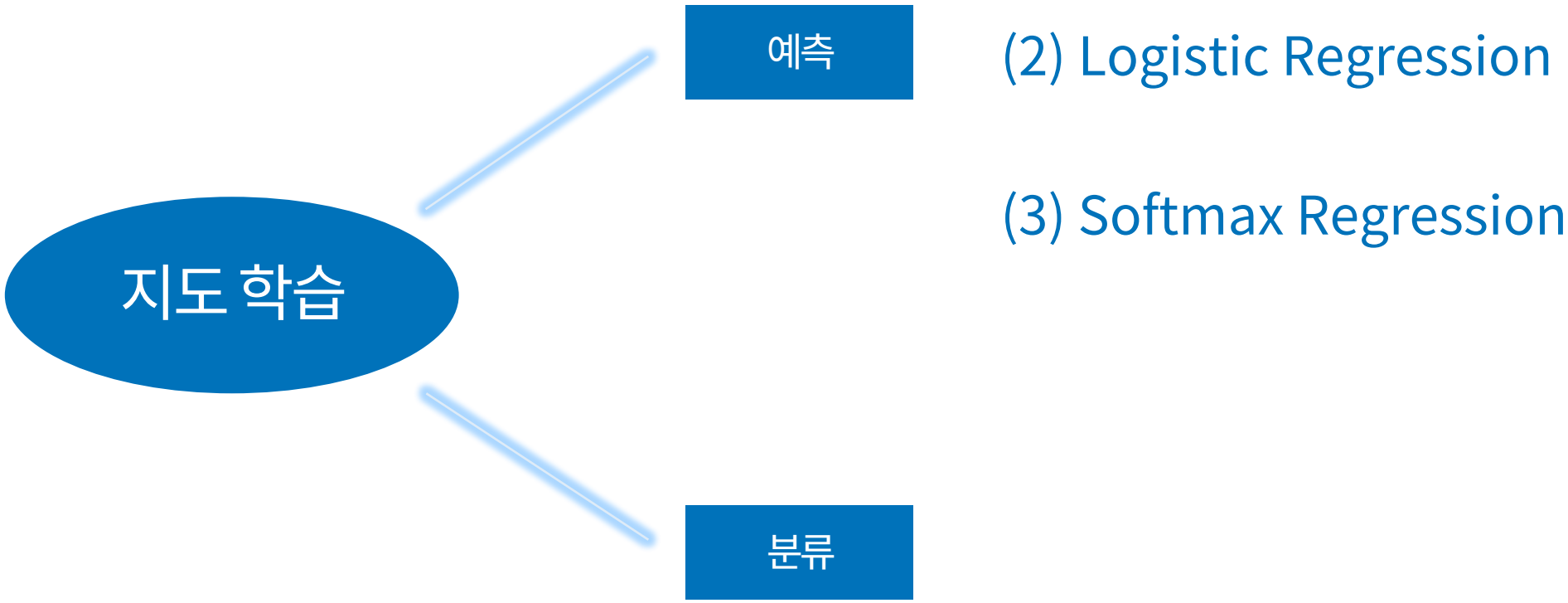
Microsoft Student Partner

Microsoft

Machine Learning 알고리즘 분류



지도 학습 분류



(1) Linear Regression

(2) Logistic Regression

(3) Softmax Regression

지도 학습 분류

(1) Linear Regression

x	y
1	1
2	100
3	6500
4	112509
5	125468

(2) Logistic Regression

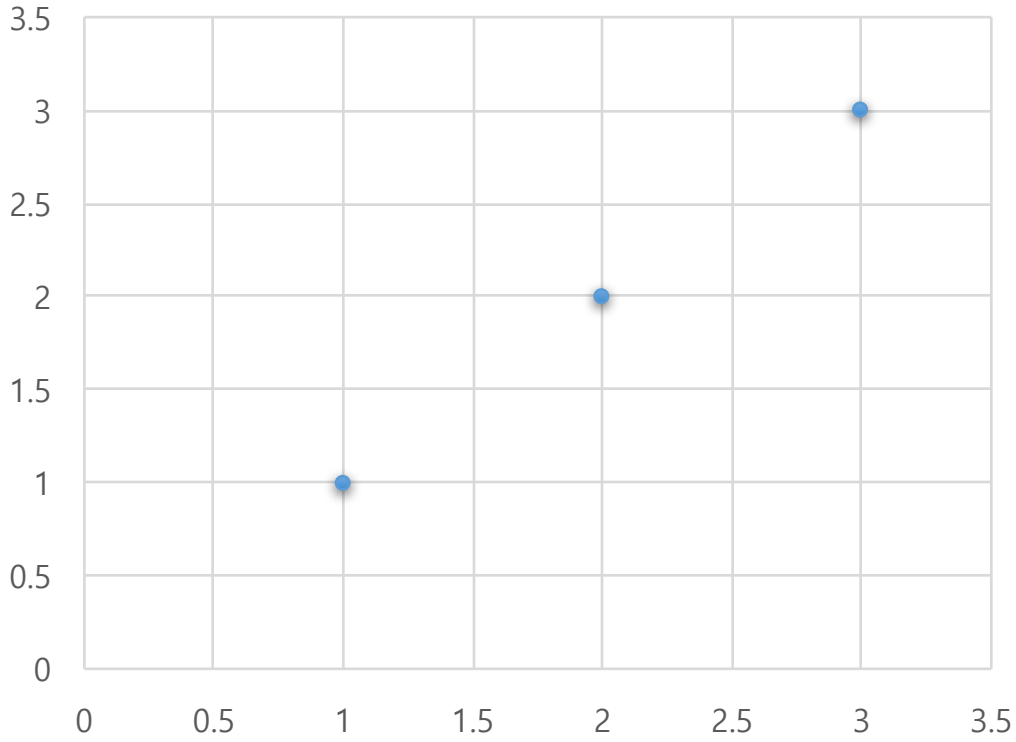
x	y
1	Y
2	Y
3	N
4	Y
5	N

(3) Softmax Regression

x	y
0	F
1	D
2	C
3	B
4	A

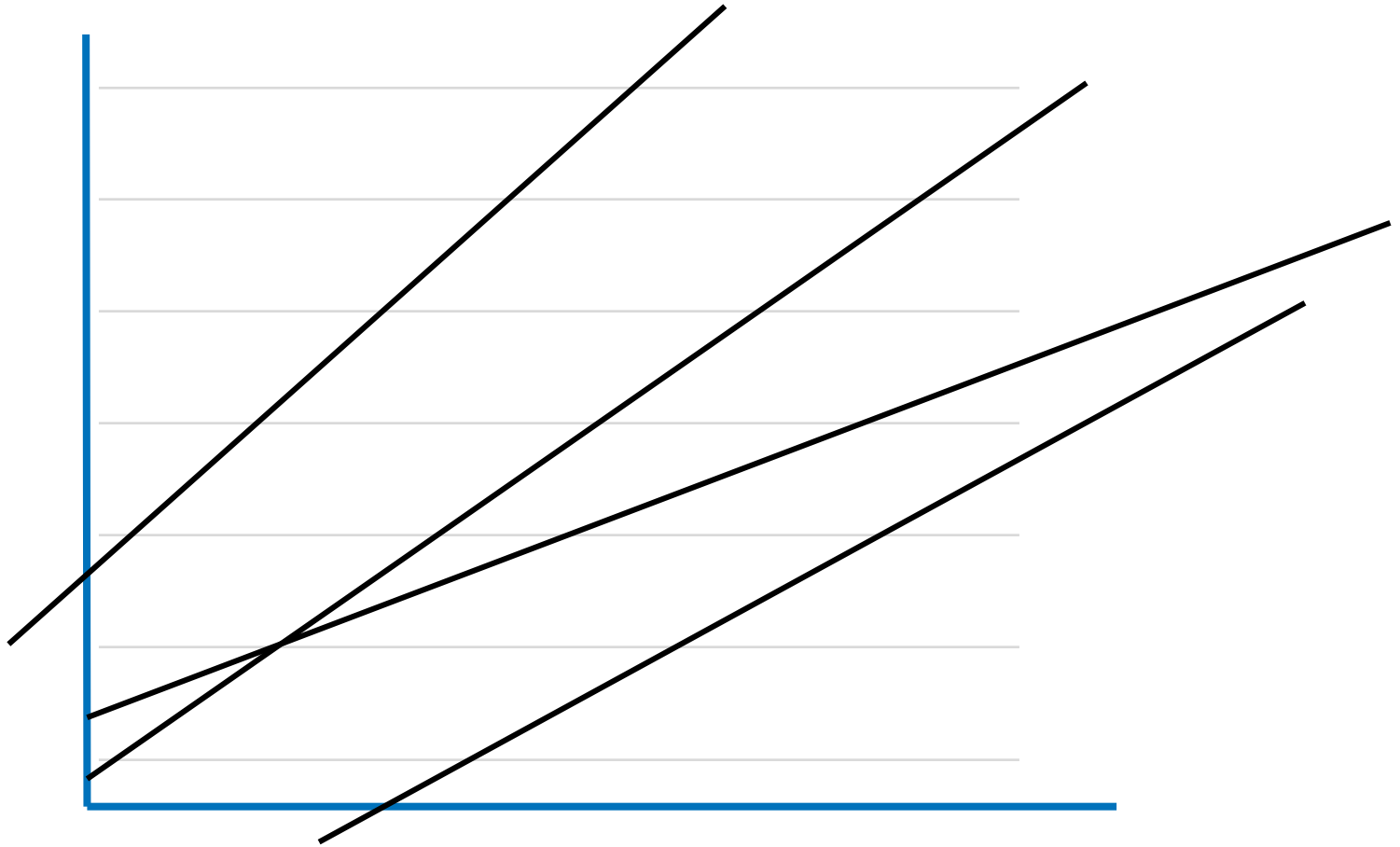
(1) Linear Regression

x	y
1	1
2	2
3	3



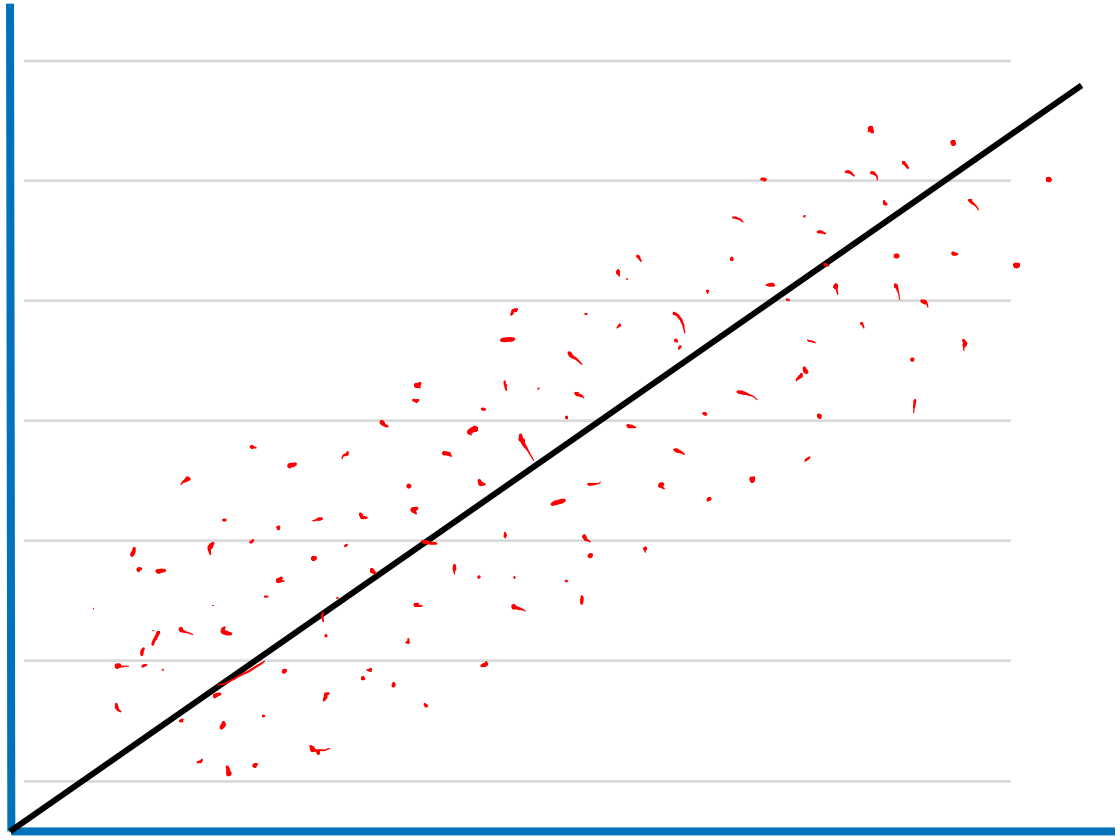
(1) Linear Regression

$$H(x) = W(x) + b$$



(1) Linear Regression

$$Cost = \frac{1}{m} \sum_{i=1}^{m} (H(xi) - yi)^2$$



(1) Linear Regression

$$Cost = \frac{1}{m} \sum_{i=1}^{m} (H(x_i) - y_i)^2$$

x	y
1	1
2	2
3	3

$W=1$, $COST=0$

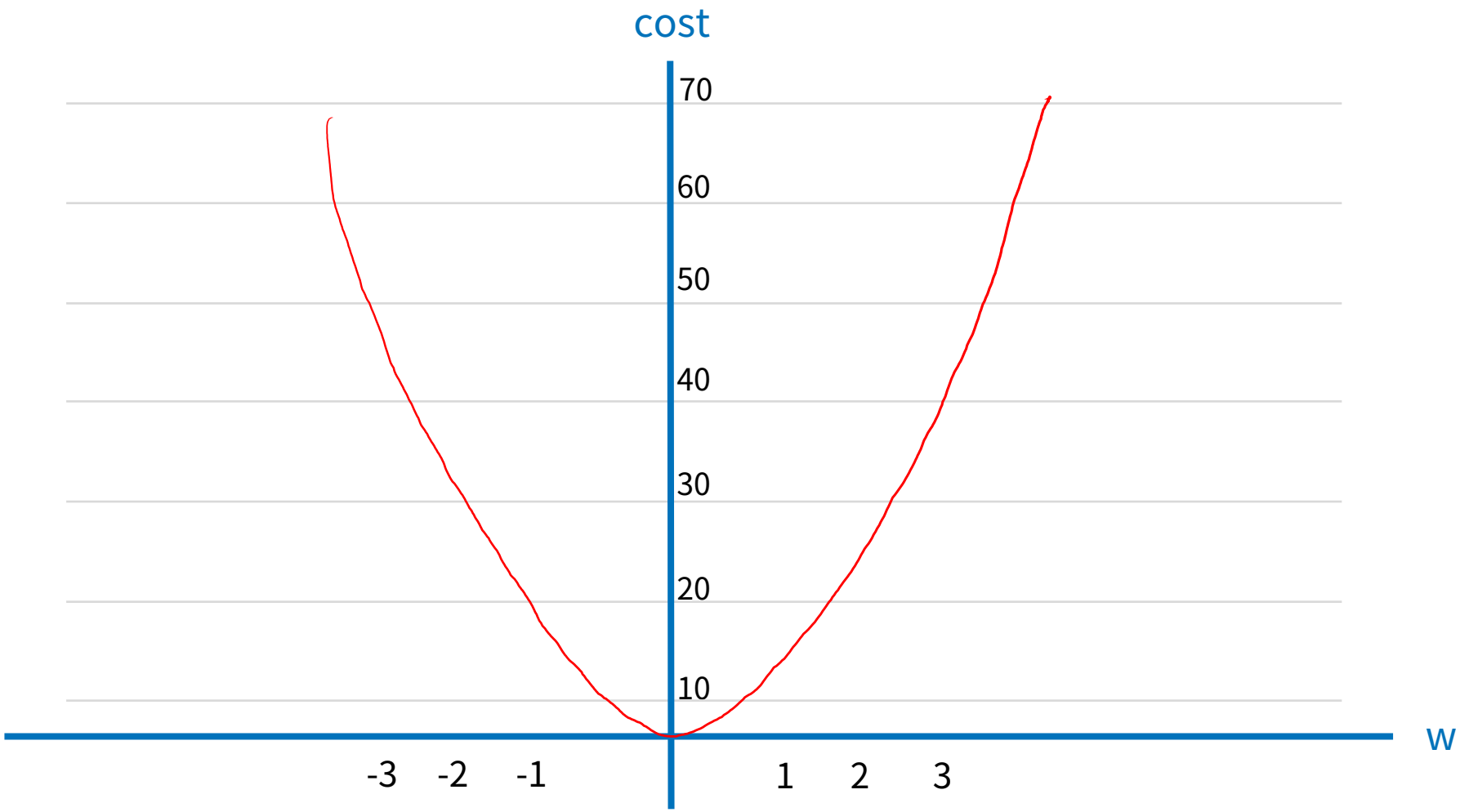
$$\frac{1}{3}((1*1-1)^2+(1*2-2)^2+(1*3-3)^2)$$

$W=0$, $COST=4.67$

$$\frac{1}{3}((0*1-1)^2+(0*2-2)^2+(0*3-3)^2)$$

$W=2$, $COST=??$

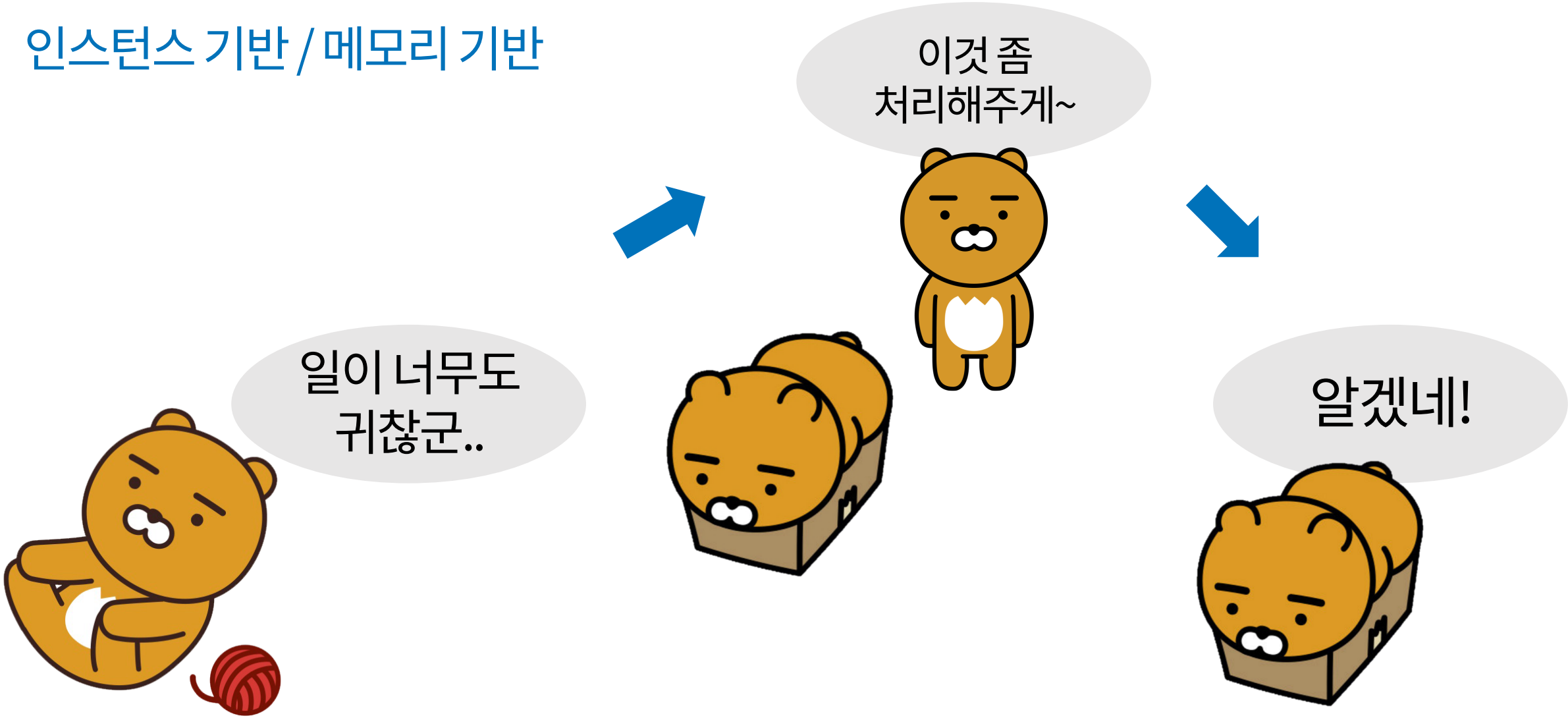
(1) Linear Regression



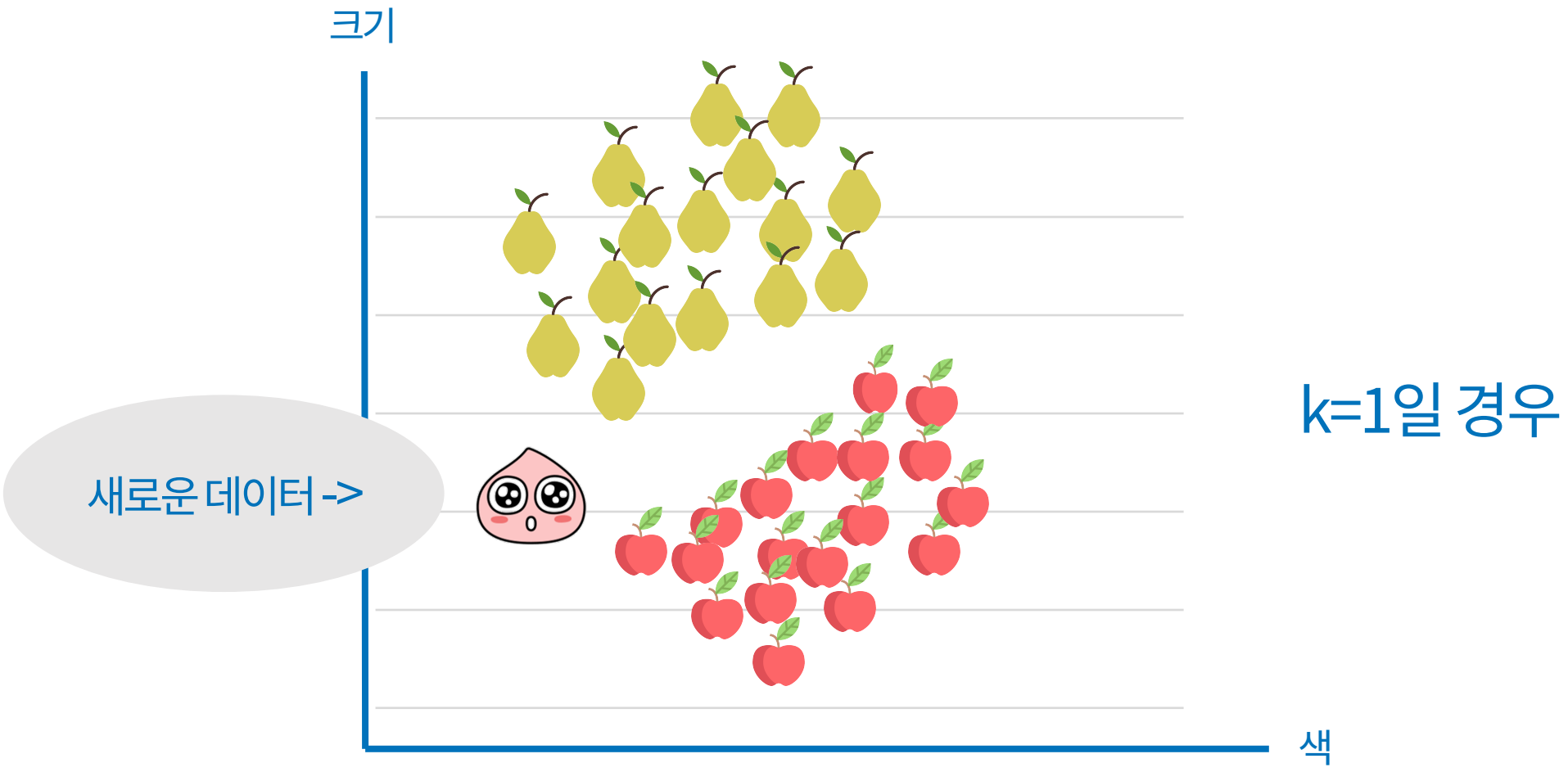
kNN 알고리즘

kNN 알고리즘

인스턴스 기반 / 메모리 기반

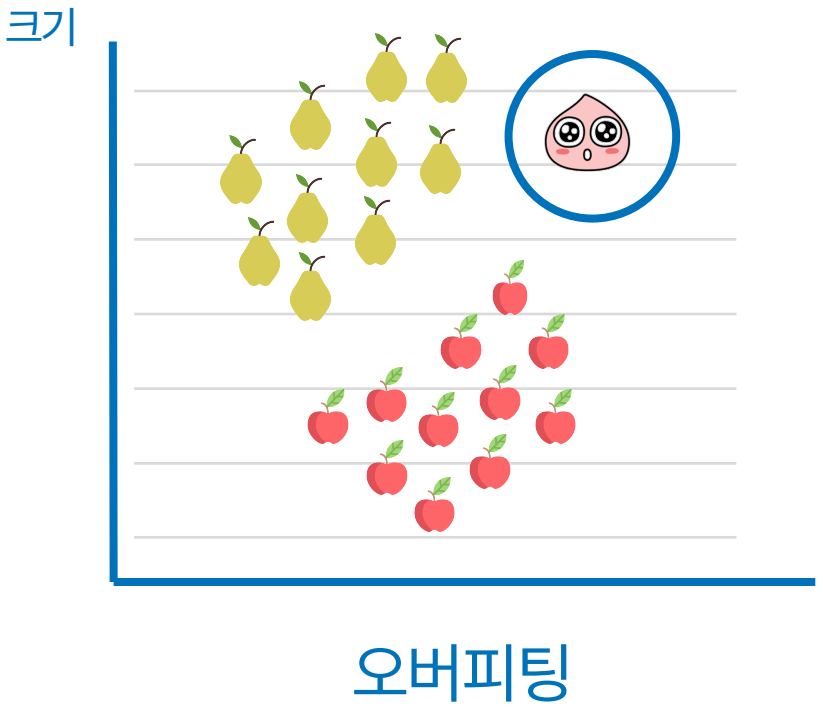


kNN 알고리즘

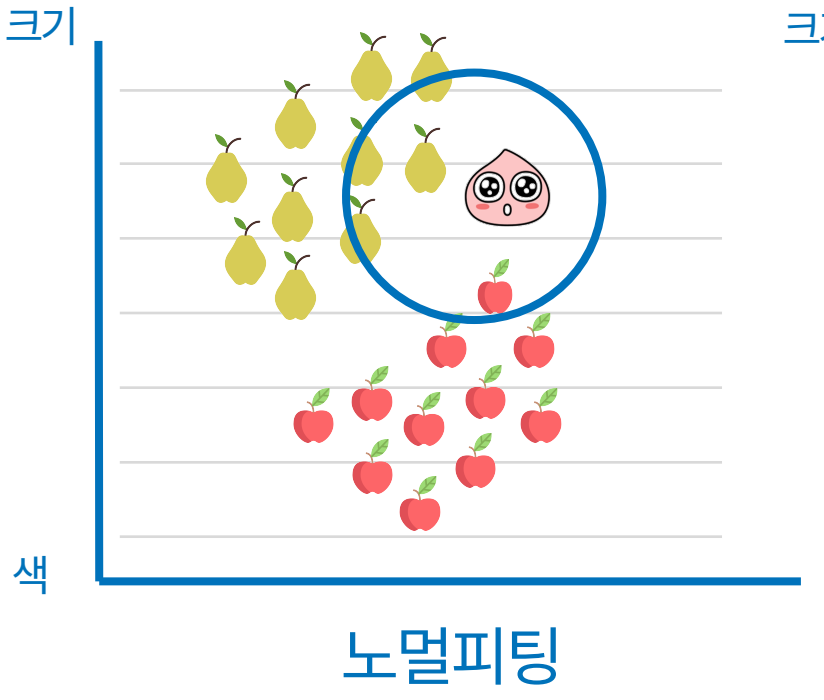


k=1일 경우

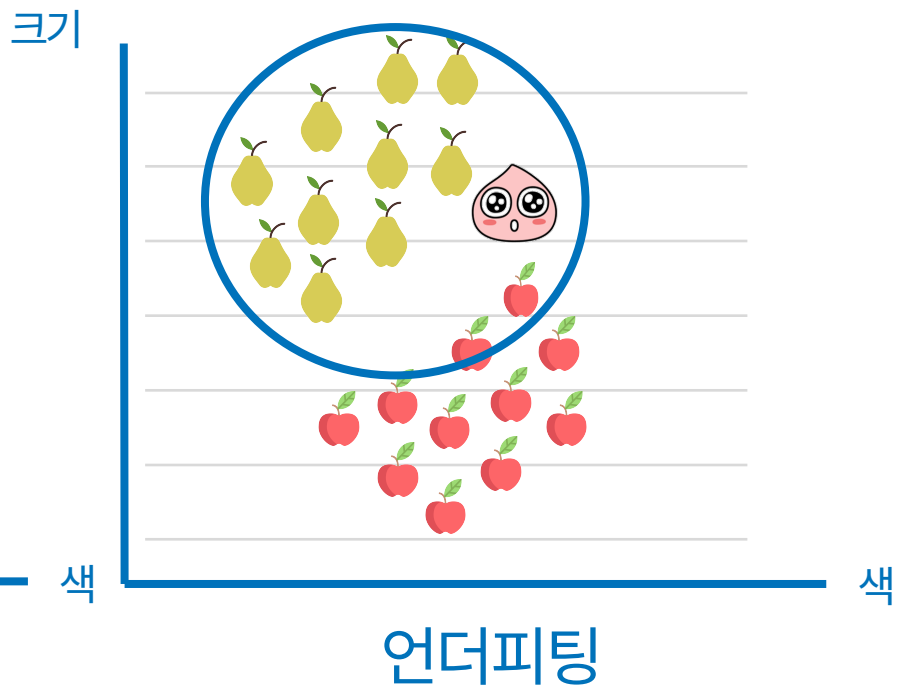
kNN 알고리즘



오버피팅

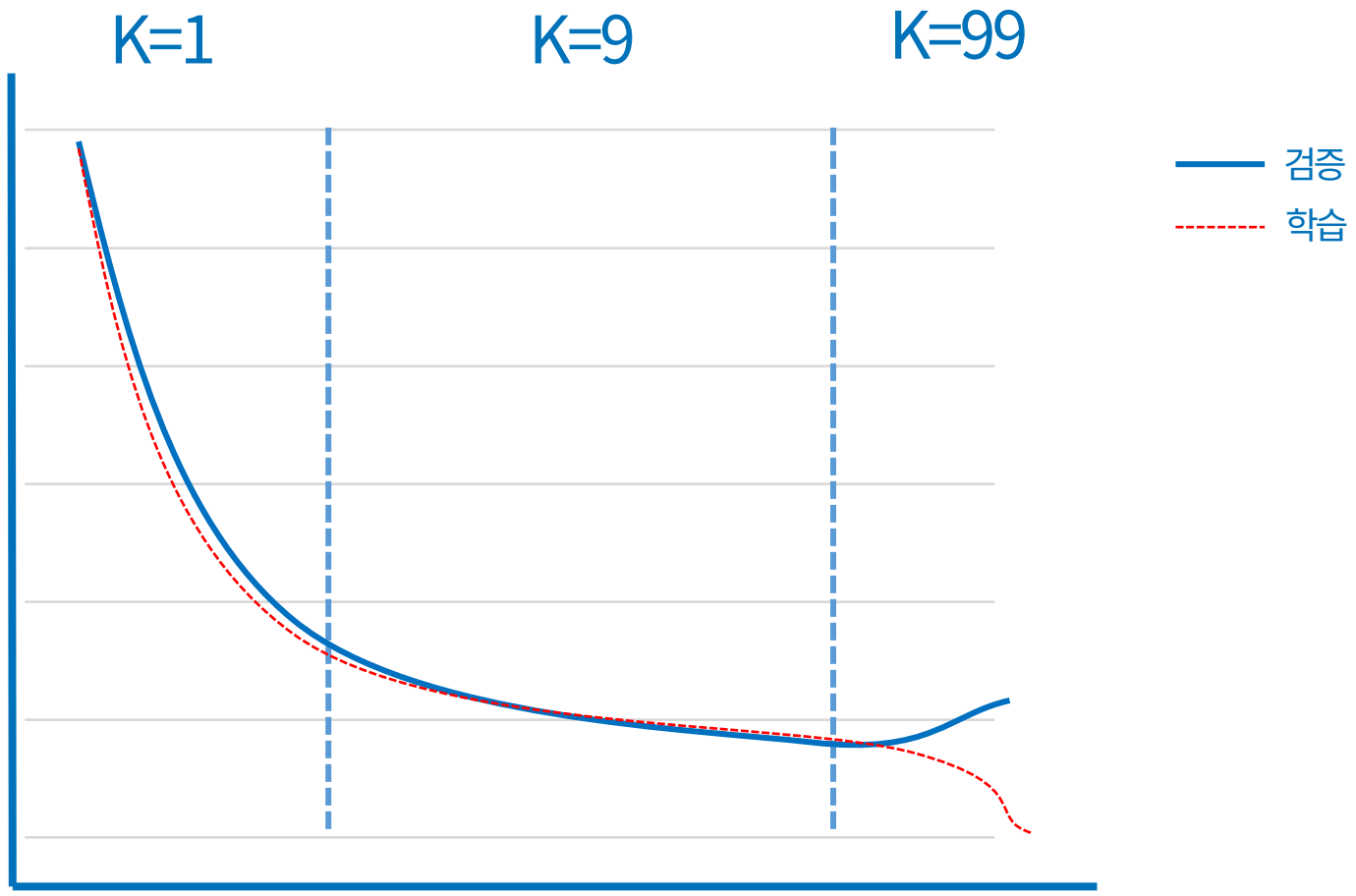


노멀피팅



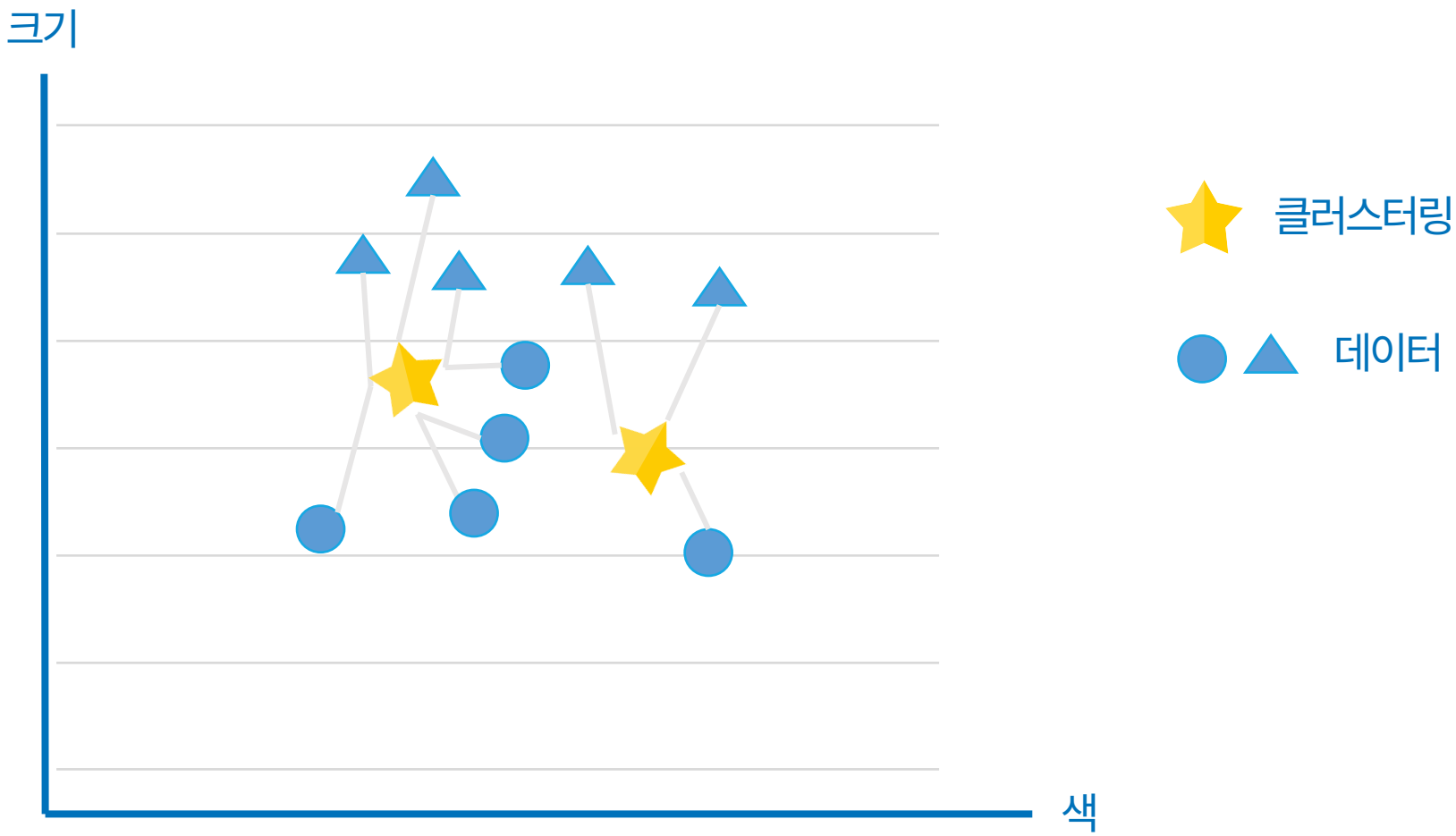
언더피팅

kNN 알고리즘

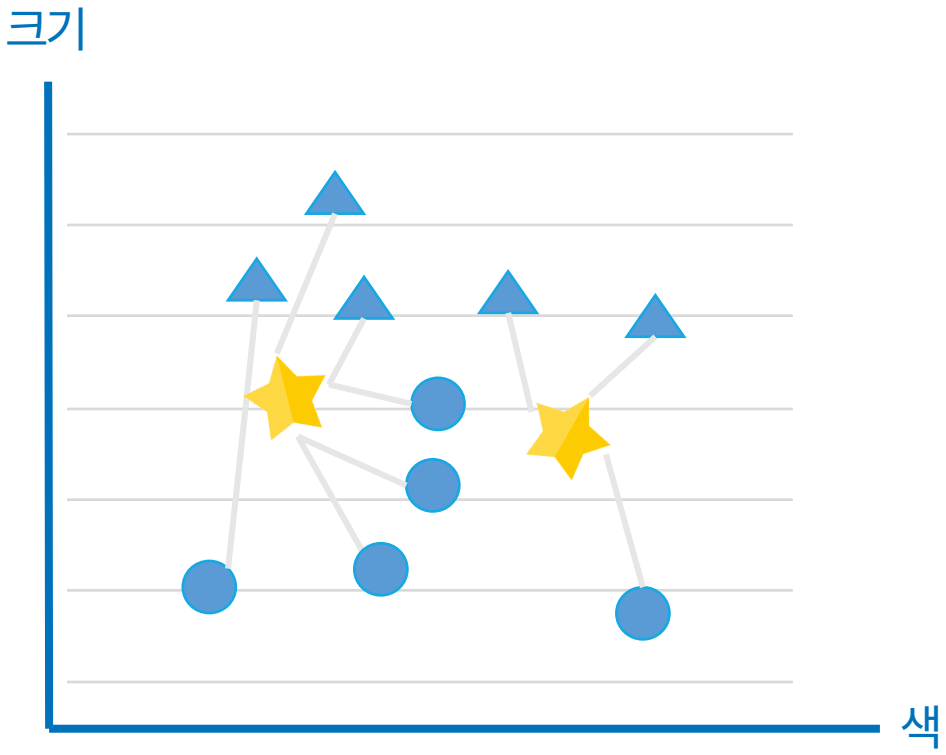


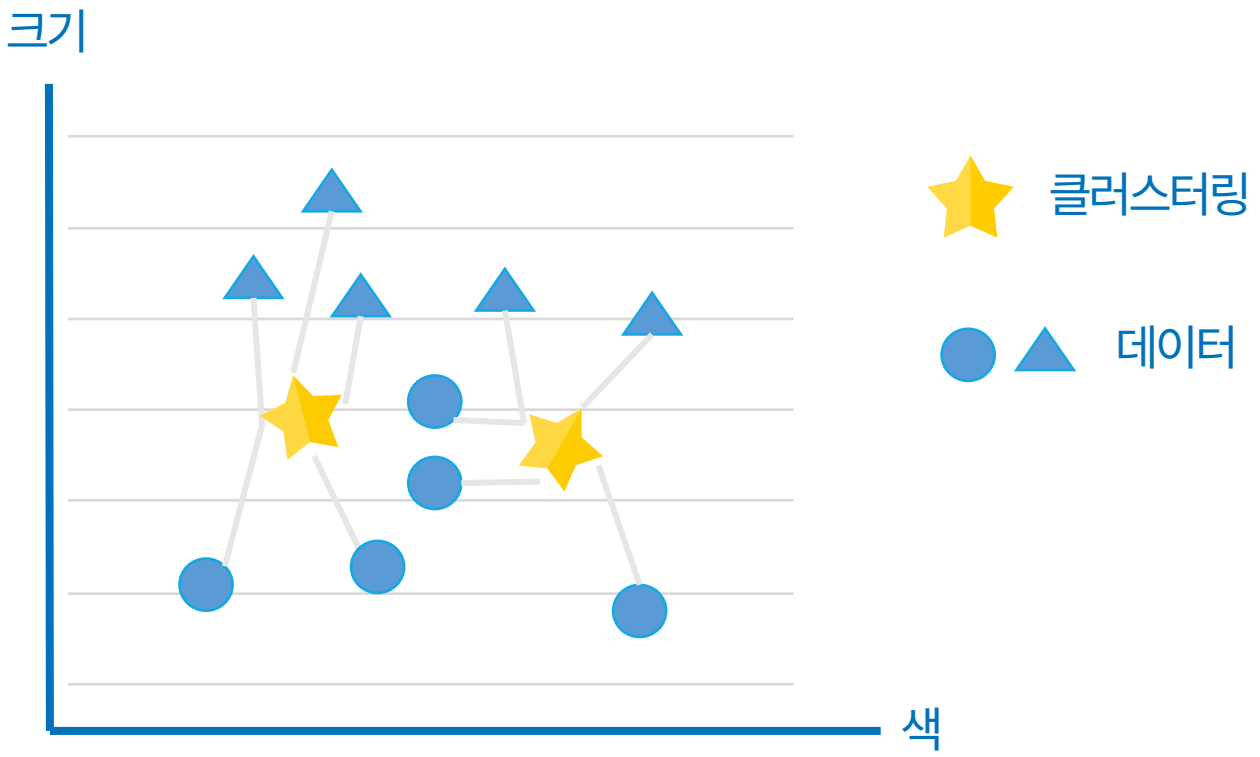
k-means 클러스터링

k-means 클러스터링

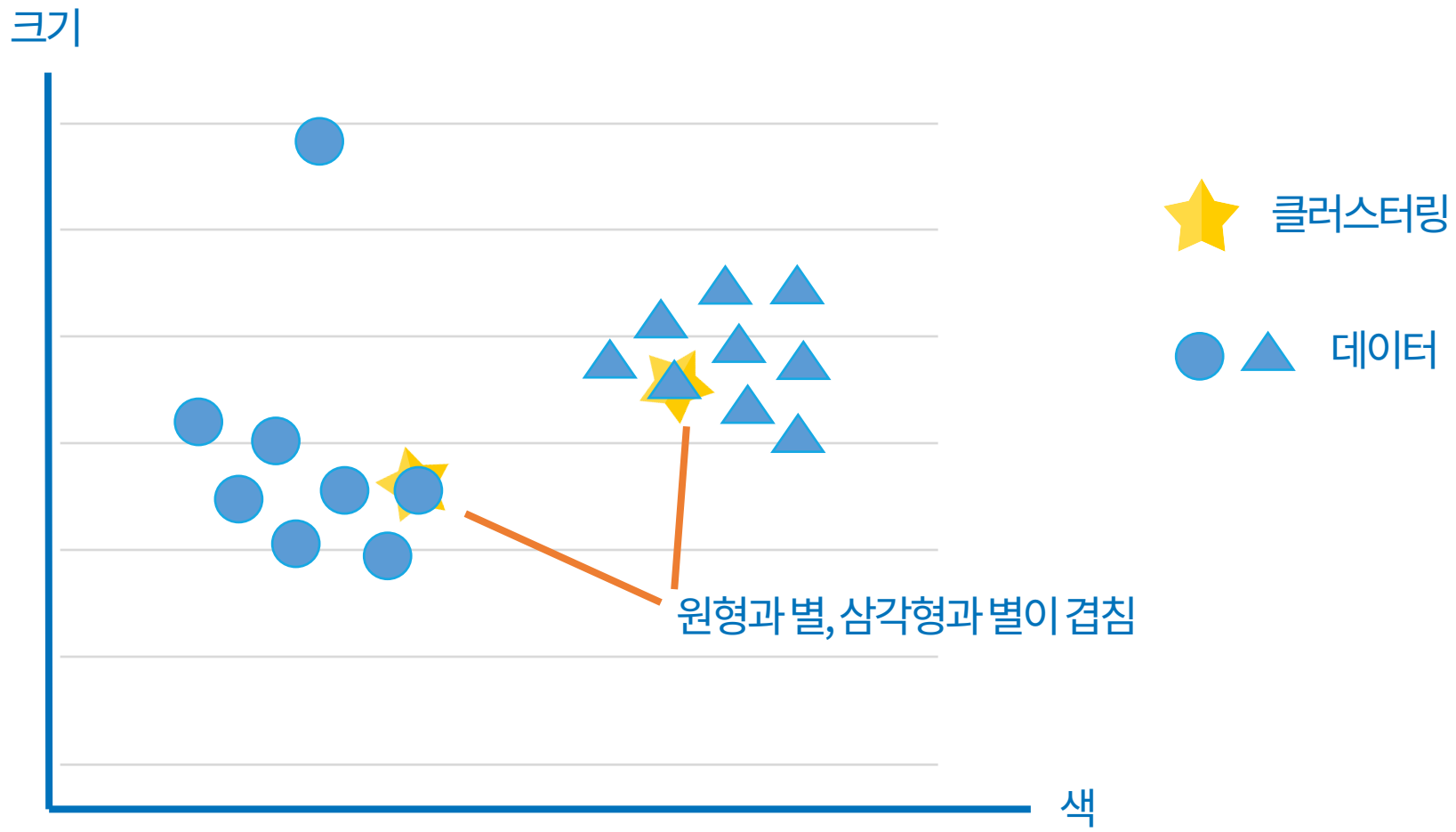


k-means 클러스터링

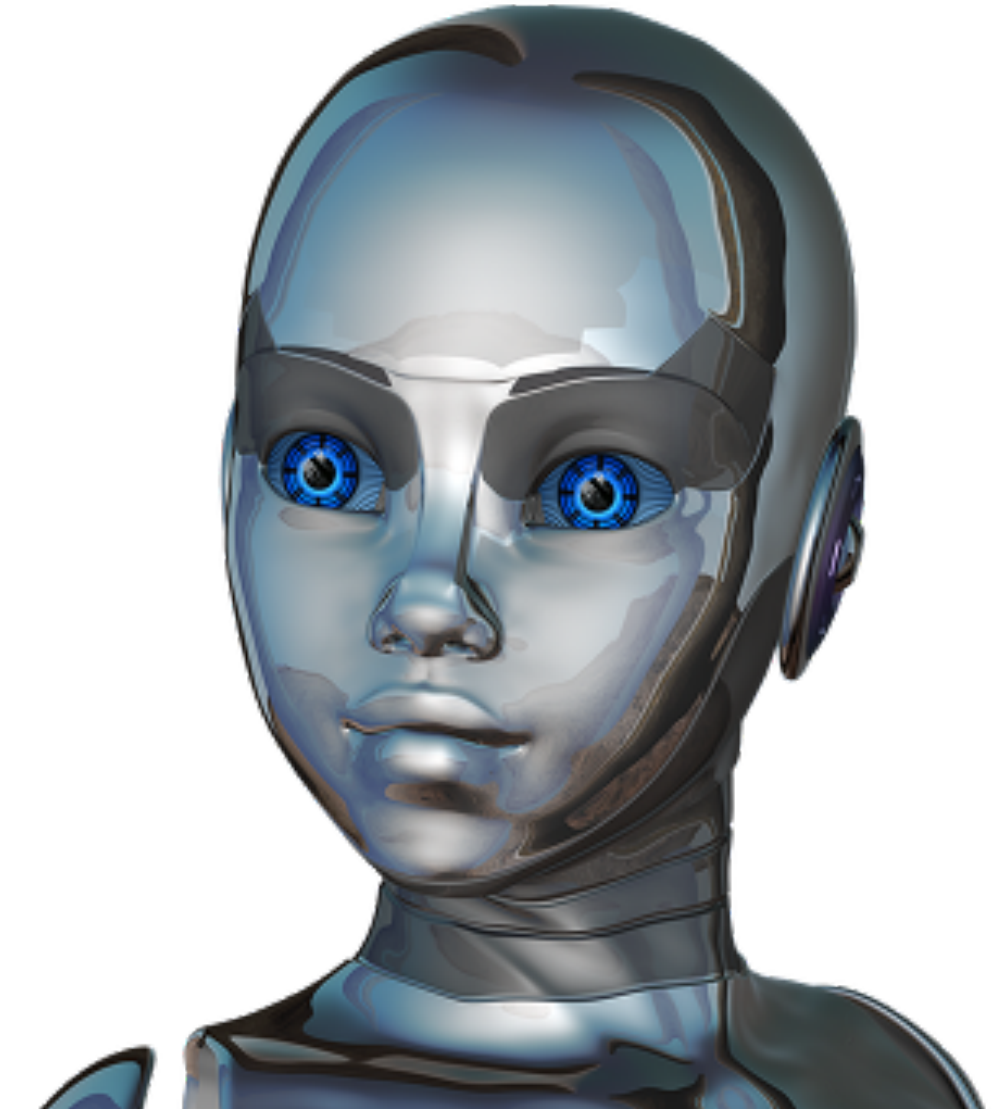




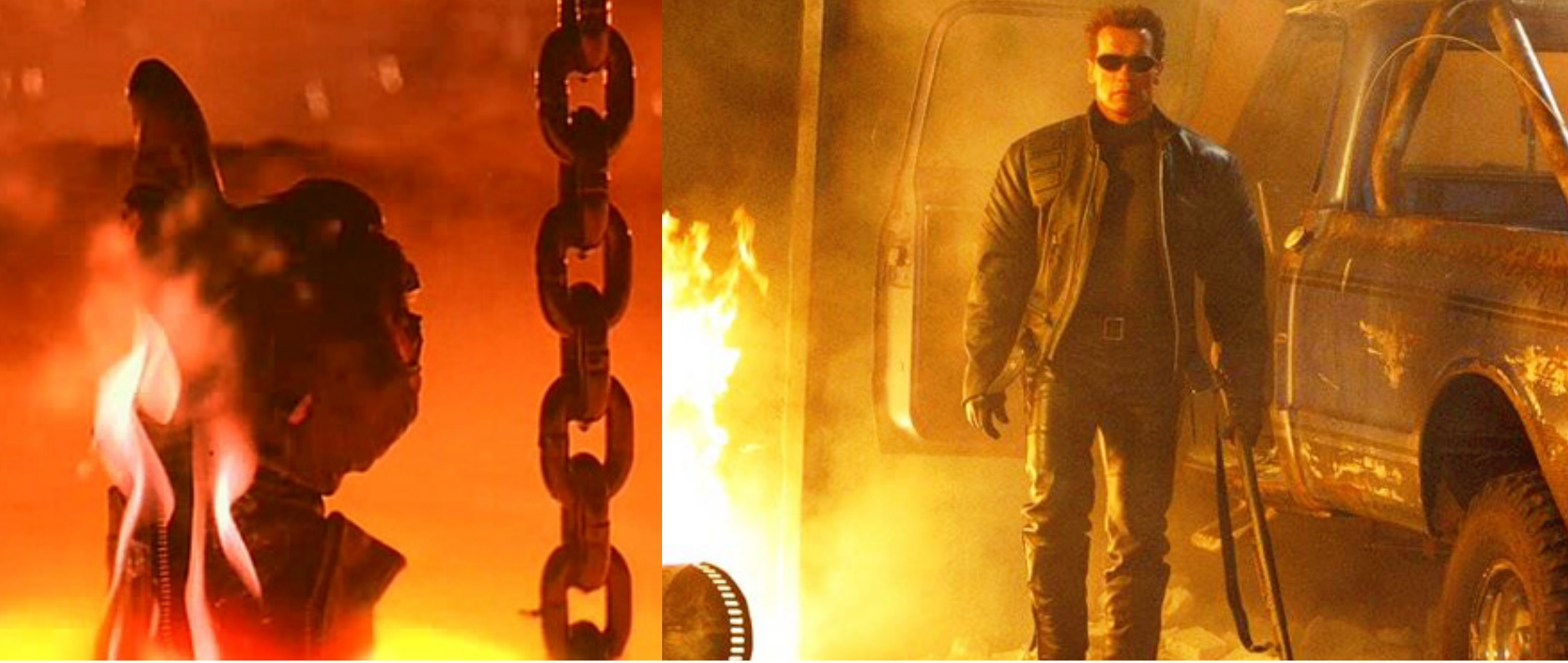
k-means 클러스터링 장점과 단점



제 3의 Machine Learning



AlphaGo



My CPU is a neural net processor, a learning computer.

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감사합니다

Microsoft