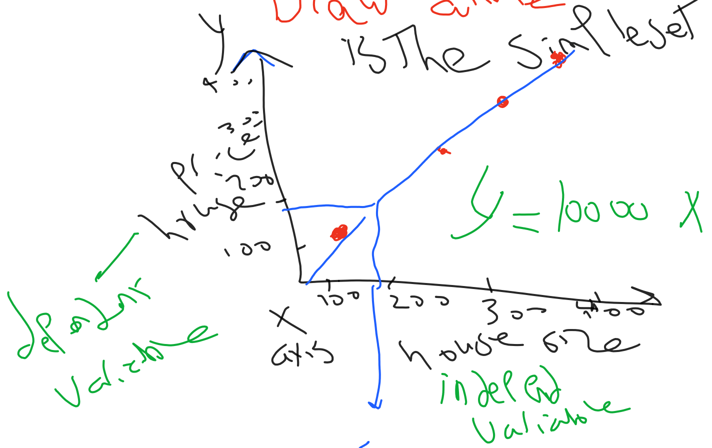
Saturday, 18 November 2023 9:18 AM

Linear Regression

Draw a line

is the simplest learning Algorithms



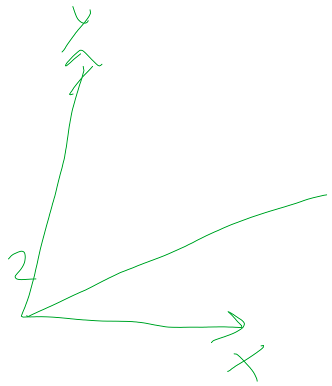
150
size = 150000

map	
size	price
100	100 000
200	200 "
300	300 "
400	400 000

Data set → learning Algorithm → h hypothesis model

size → h hypothesis model → price

relation

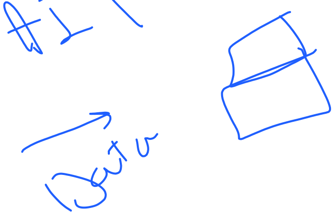


$$h(x) = \theta_0 + \theta_1 X$$

θ_0 → y-intersect

θ_1 → slope

AI programing

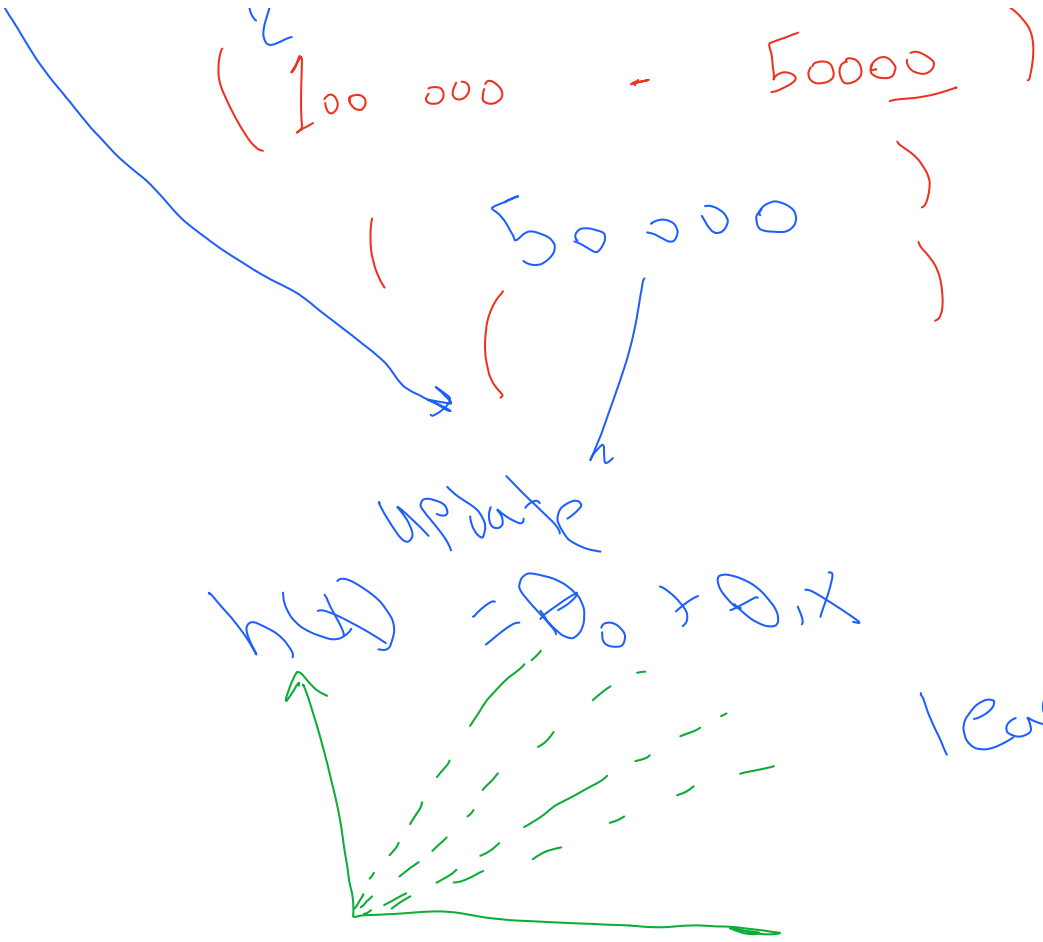


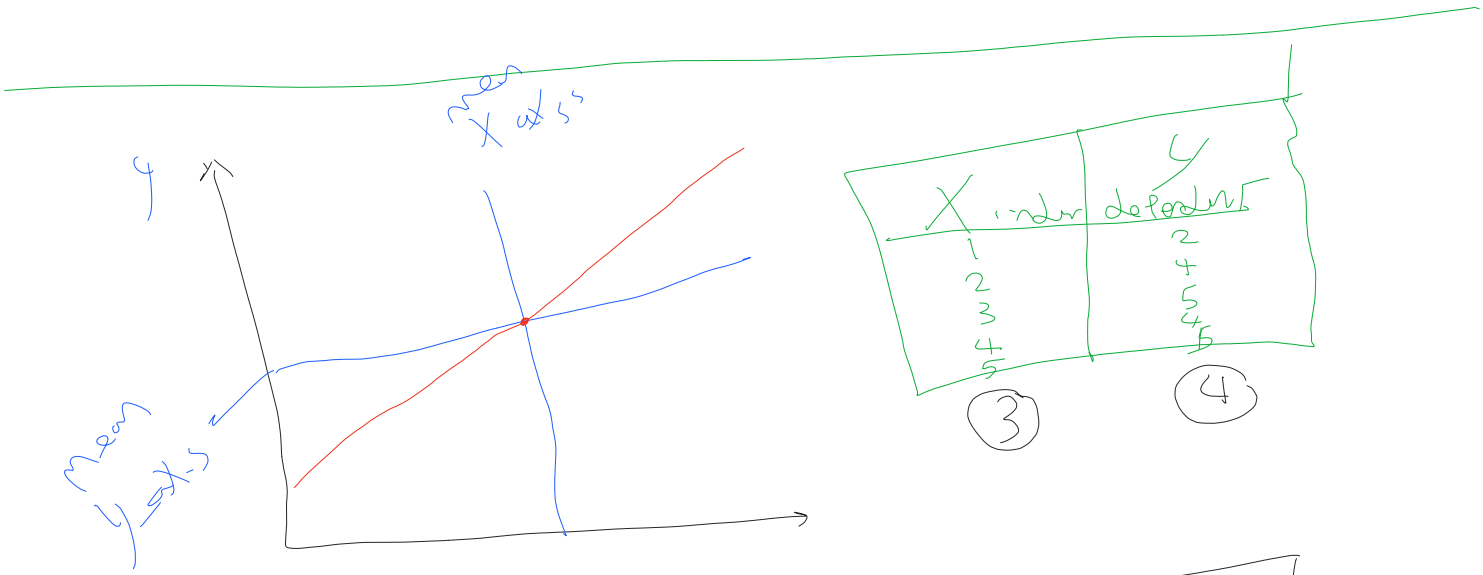
eg.

$h(x) = 0 + 5000 X = 6.5$

$h(100) = 0 + 10 X 5000 = 50000$ $\hat{y}$

$error = \frac{1}{n} (actual\ output - predicted\ output)^2$





$x-\bar{x}$	$y-\bar{y}$	$(x-\bar{x})^2$	$(x-\bar{x})(y-\bar{y})$
-2	-2	4	4
-1	0	1	0
0	-1	0	0
1	0	1	0
2	1	4	2
		10	6

numerator

$$B_{slope} = \frac{\sum (x-\bar{x})(y-\bar{y})}{\sum (x-\bar{x})^2} = \frac{6}{10} = 0.6$$

$\theta_1 = 0.6$

→ Denominator!

$$4 = \theta_0 + (0.6)x$$

$$4 = \theta_0 + (0.6)3$$

$$4 = \theta_0 + 1.8$$

$$\theta_0 = 2.2$$

$\theta_0 = 2.2$

$\theta_1 = 0.6$

$h(x) = 2.2 + X0.6$

$X = 5$

$\hat{y}$