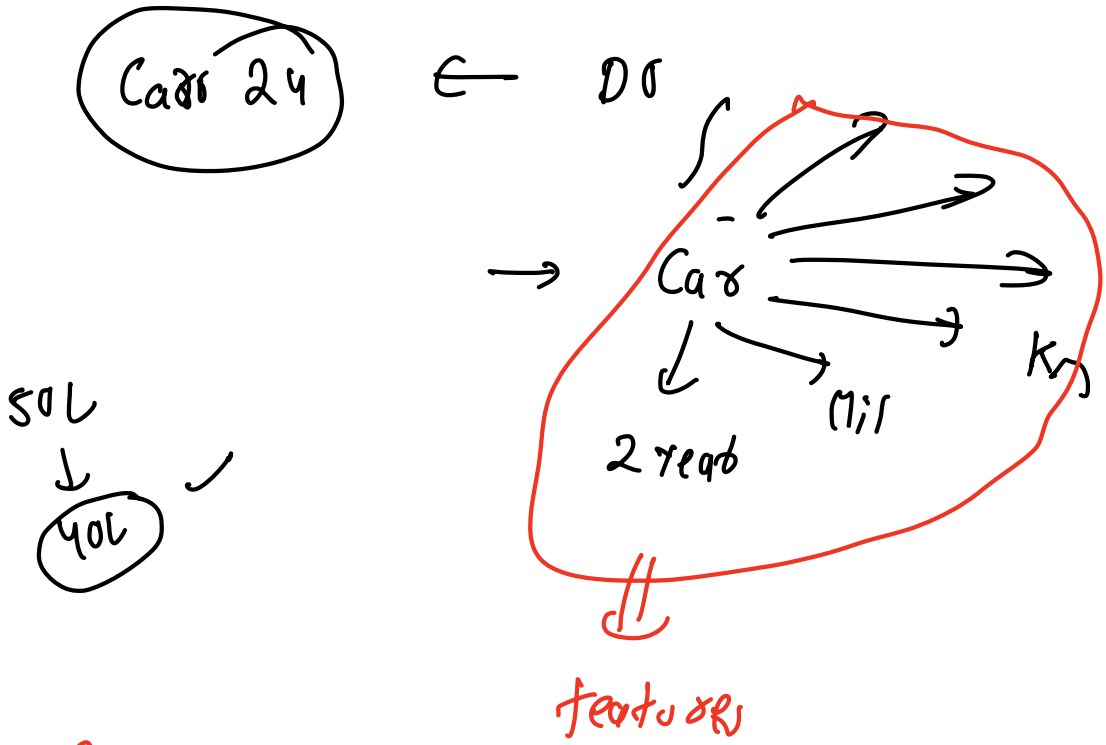
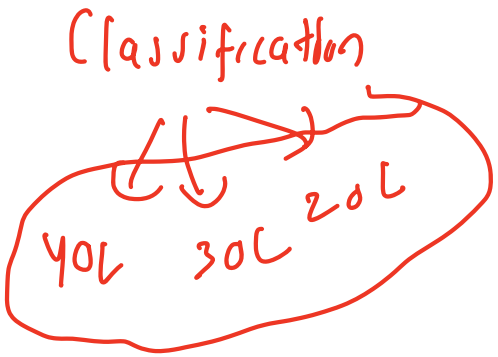
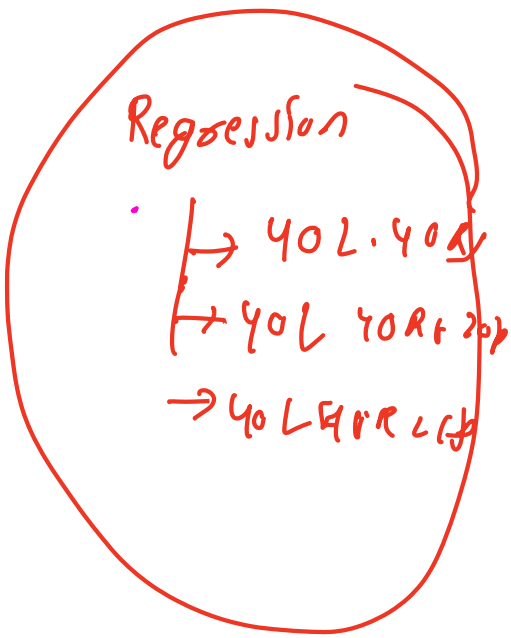
Linear Regression-1







[0 to 1]

0

0.1

0.001

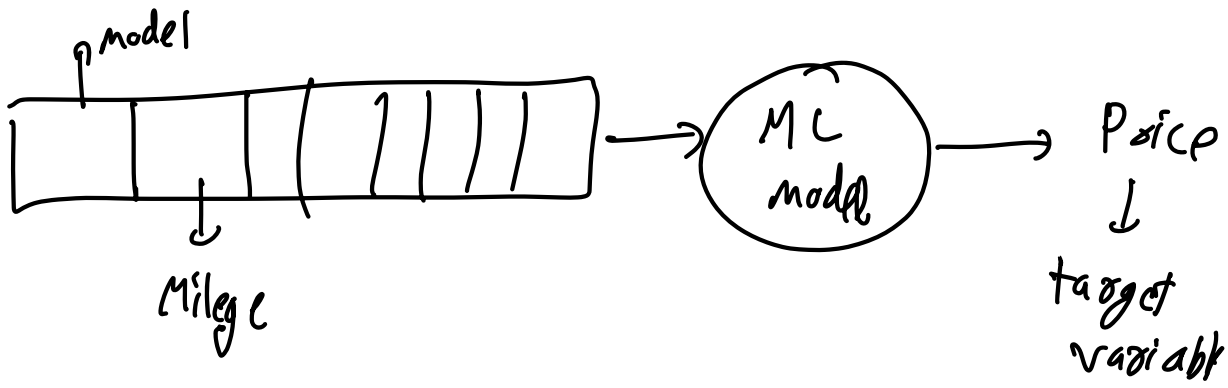
0.01

0.00001

0.000000001

0.2

0.0 ...



One Hot Encoding

Age	Milage	Make	Cost
20	10	Maruti	20L
30	40	Ford	30L
—	—	Maruti	—
—	—	Maruti	—
—	—	Ford	—

2 Make + 2 Age + 4 Milage = cost

2 * Maruti

Label encoding

ordinal

School	Age	Milage	Make	Cost
High school	20	16	1	20L
Graduate	30	40	2	30L
Graduate	—	—	1	—
PostGrad	—	—	Maruti	—
	—	—	Ford	—

Maruti → 1

Ford → 2

Age	Milage		Cost	Make_Maruti	Make_Ford
20	16		20L	1	0
30	40		30L	0	1
—	—		—	1	0
—	—		—	1	0
—	—		—	0	1

Age	Milage	Make	Cost	Make_maruti	mak_Fo	BMW	H
20	16	Maruti	20L	1	0	0	0
30	40	Ford	30L	0	1	0	0
—	—	BMW	—	0	0	1	0
—	—	Maruti	—	1	0	0	0
—	—	Ford	—	0	1	0	0
—	—	Hundai	—	0	0	0	1

Target Encoding

0 to 1

age

2 → 0

3 →

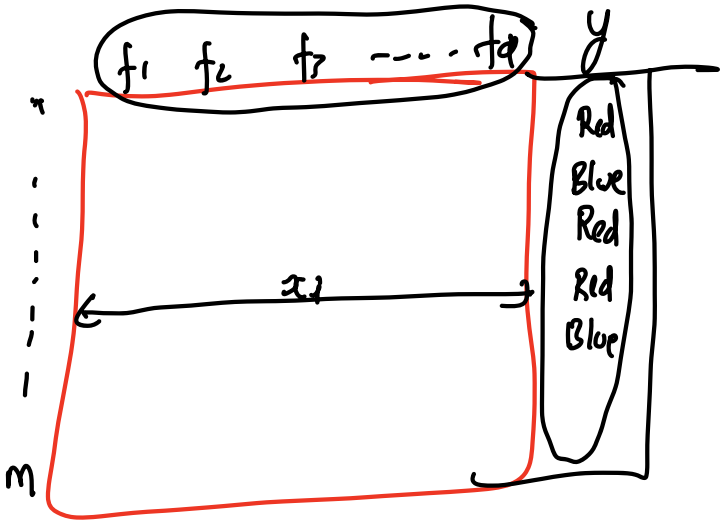
5 →

7 →

10 →

12 →

$$x_{scale} = \frac{x - x_{min}}{x_{max} - x_{min}}$$



d → # features

m → # samples

n → 2

m * d

$x^i = [x_1^i, x_2^i, \cdots x_d^i]$

y_i $\quad \hat{y}_i$

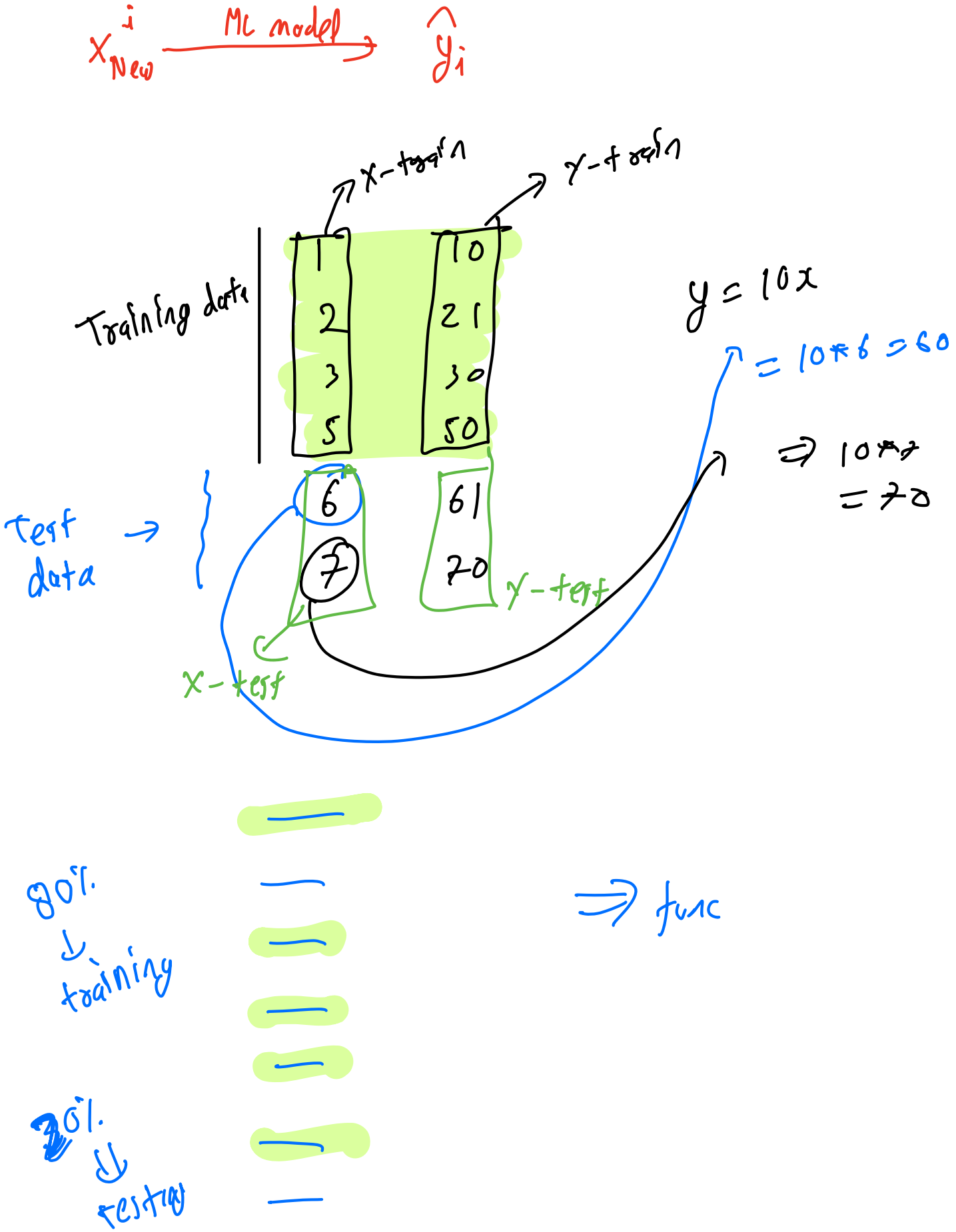
$\hat{y}_i$ → Predicted o/p

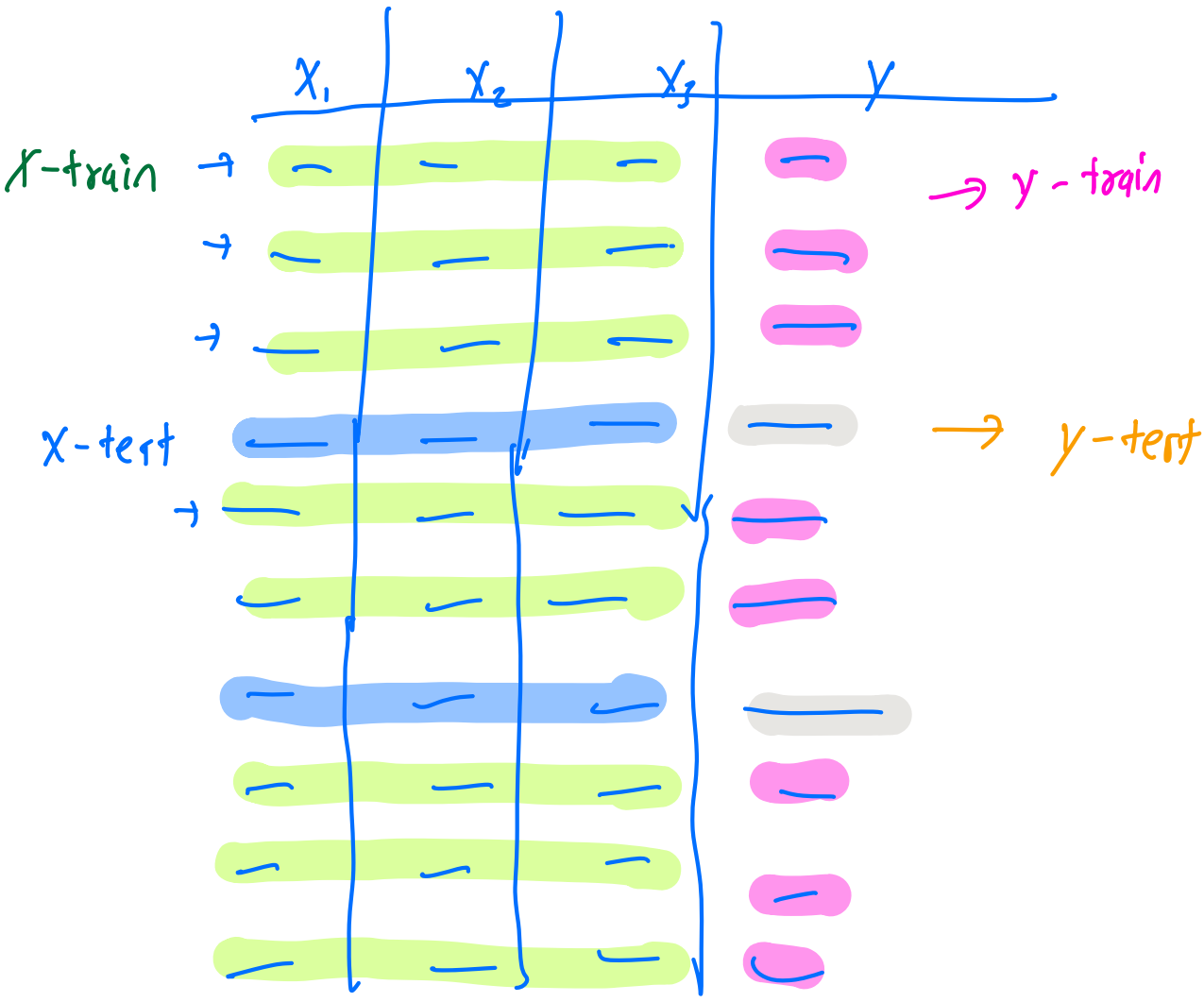
Break : 8:32

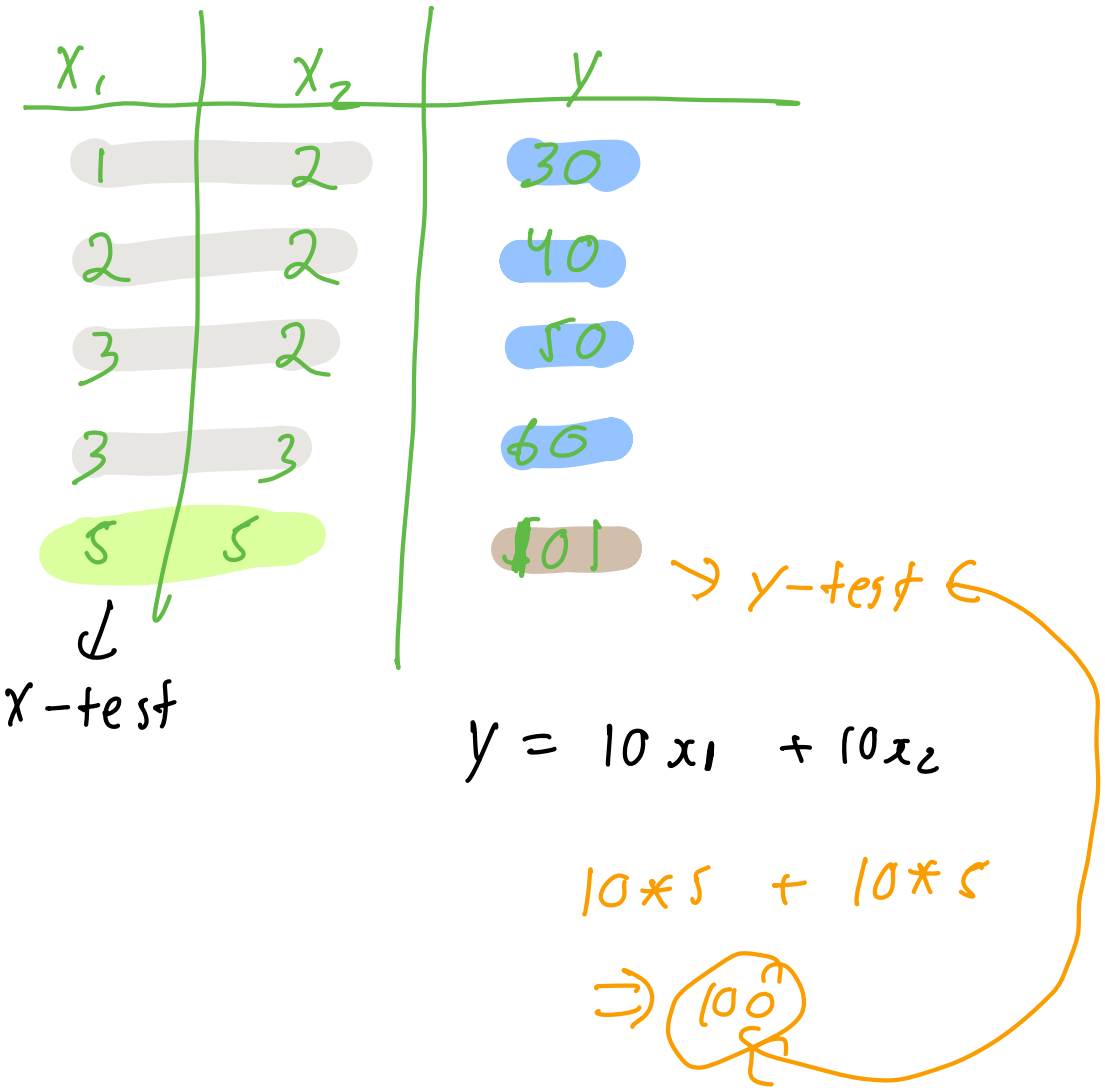
$\{x^i, y^i\}^m$

$x^i \xrightarrow{\text{ML model}} \hat{y}_i$

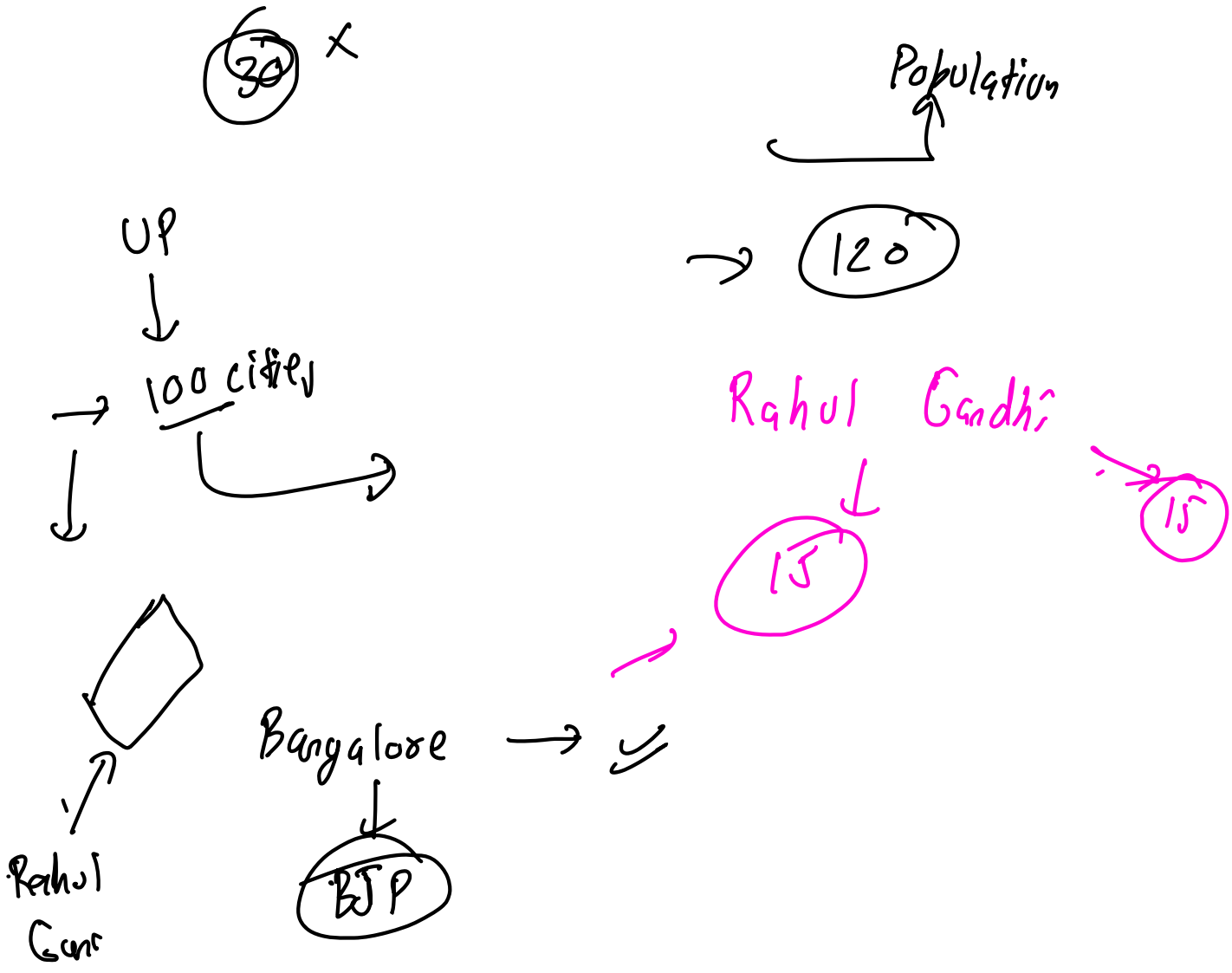
$\hat{y}_i \approx y^i$


x^i_{New}
ML model
$\hat{y}_i$
x-train
y-train
Training data
1
2
3
5
10
21
30
50
y = 10x
= 10*6 = 60
⇒ 10*2
= 20
test data
6
7
61
20
y-test
x-test
80%
training
20%
testing
⇒ func

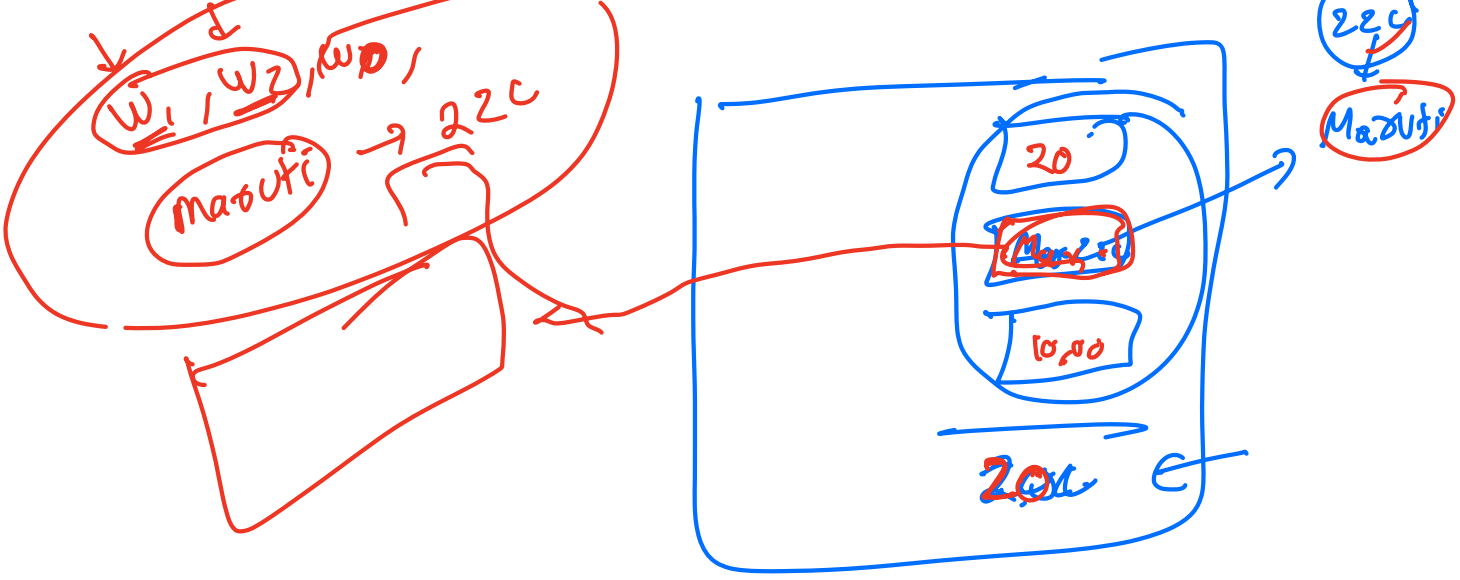

X1
X2
X3
Y
X-train
y-train
X-test
y-test


x_1
x_2
y
1 2 30
2 2 40
3 2 50
3 3 60
5 5 101
x-test
y-test
$y = 10x_1 + 10x_2$
10*5 + 10*5
100

CTRL + S



$$M \; w_3 x_3 + w_1 x_1 + w_2 x_2 + w_0 = 0$$



Google →

Online learning