x_1, x_2, x_3 → y {0, 1} binary class

→ Logistic {0, 1} → sklearn

{0, 1, 2} → 3 class / no binary → multiclass classification

One (vs) rest classification

classifier 1

one → 0 → 1
rest {1, 2} → 0

classifier 2

0 → 0
1 → 1
2 → 0

classifier -3

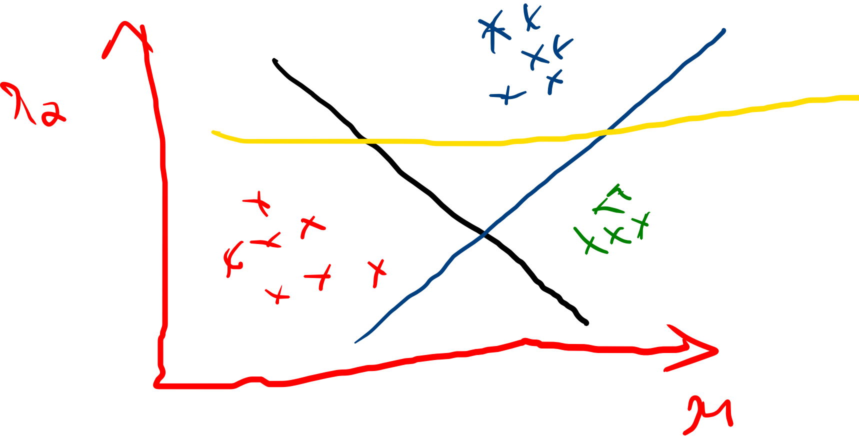
0, 1 → 0
2 → 1

predict

I/p → C1 → 1 → 0, 0 → C2 → 1 → 1, 0 → C3 → 1 → 2, 0 → 0

predict method

[1, 1, 0]



③ decision boundaries

One (vs) rest

logistic < 0, 1 y -> binomial distribution

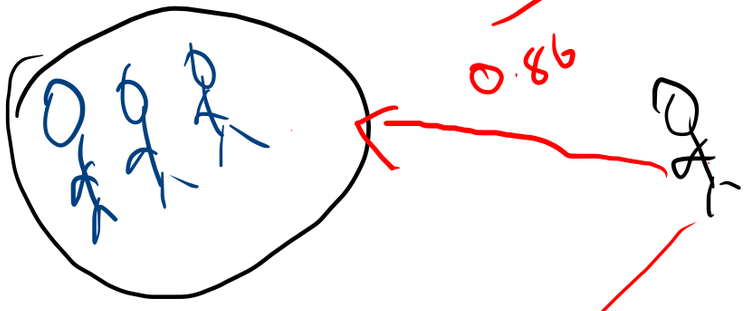
sklearn

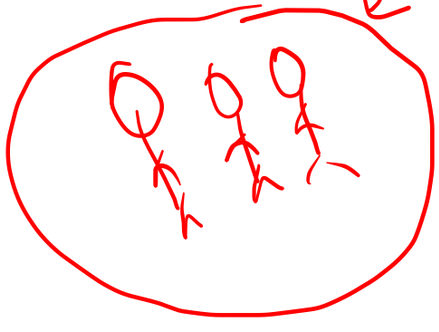
Dirichlet distribution

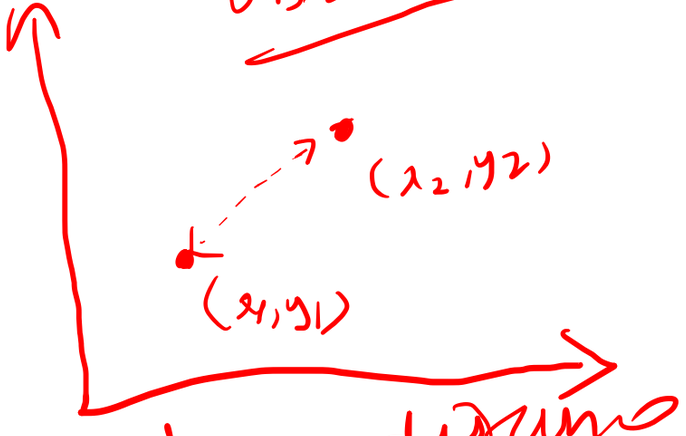
Naive bayes

-> multinomial naive bayes

KNN



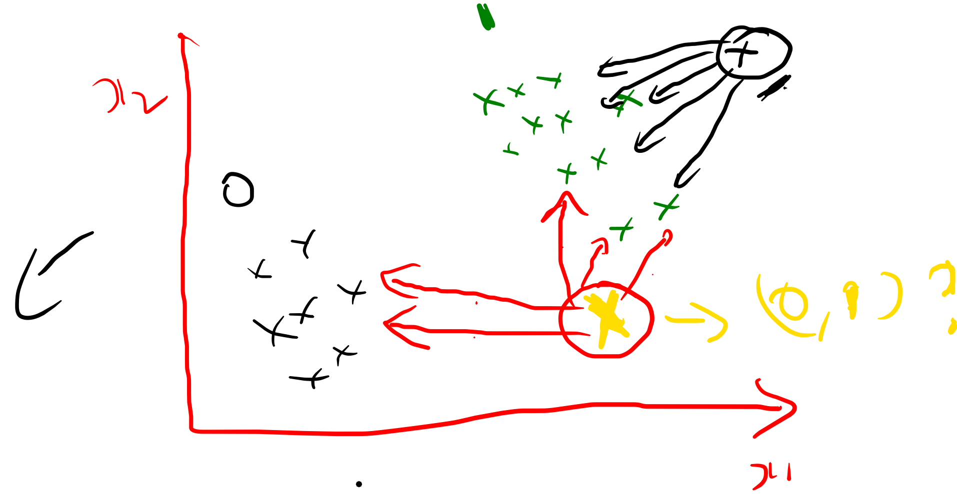




Euclidean distance

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

distance



no
Coeffs
learned

Euclidean

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

K = 5

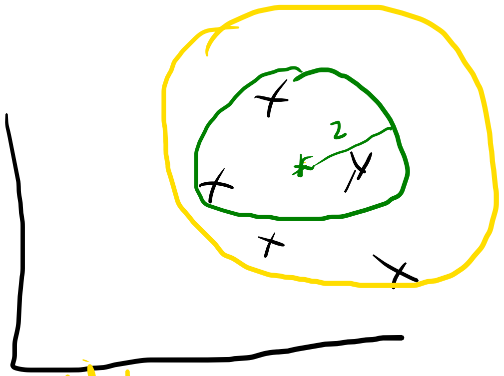
prediction → 1

K = 5 { 3 → 1, 2 → 0 }

K = 5 { 5 → 1, 0 → 0 } y prediction 1

1. with help of neighbour we are estimate class

2. No separate train / lazy learning algorithm



→ k = 5 → 1 → 4 → (1)
→ 0 1

curse dimensionality

↳ find distance for higher dimension is stuff

$x_1, x_2, x_2, x_2 \ldots x_n$

↓

Higher dimension

↓

curse of dimension

$$E = \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2}$$

(hamm dyn — $\Sigma |x_i - y_i|$)

X

$N \to 0 \quad k = 1$

$$\begin{pmatrix} 0 & 1 \\ 0 & 1 \end{pmatrix} \to \begin{pmatrix} 0 \\ 1 \end{pmatrix} y$$

k -> 3, 5, 7, 9, 11, 14 . . . . .

actual	y_pred
0	0 -> 0
1	0 -> 1
0	1 -> 1
1	1 -> 0

age → 0 - 100

salary → 10L - 1crore

↓

standard scaler (or)

2 → Normalization

standard scaler

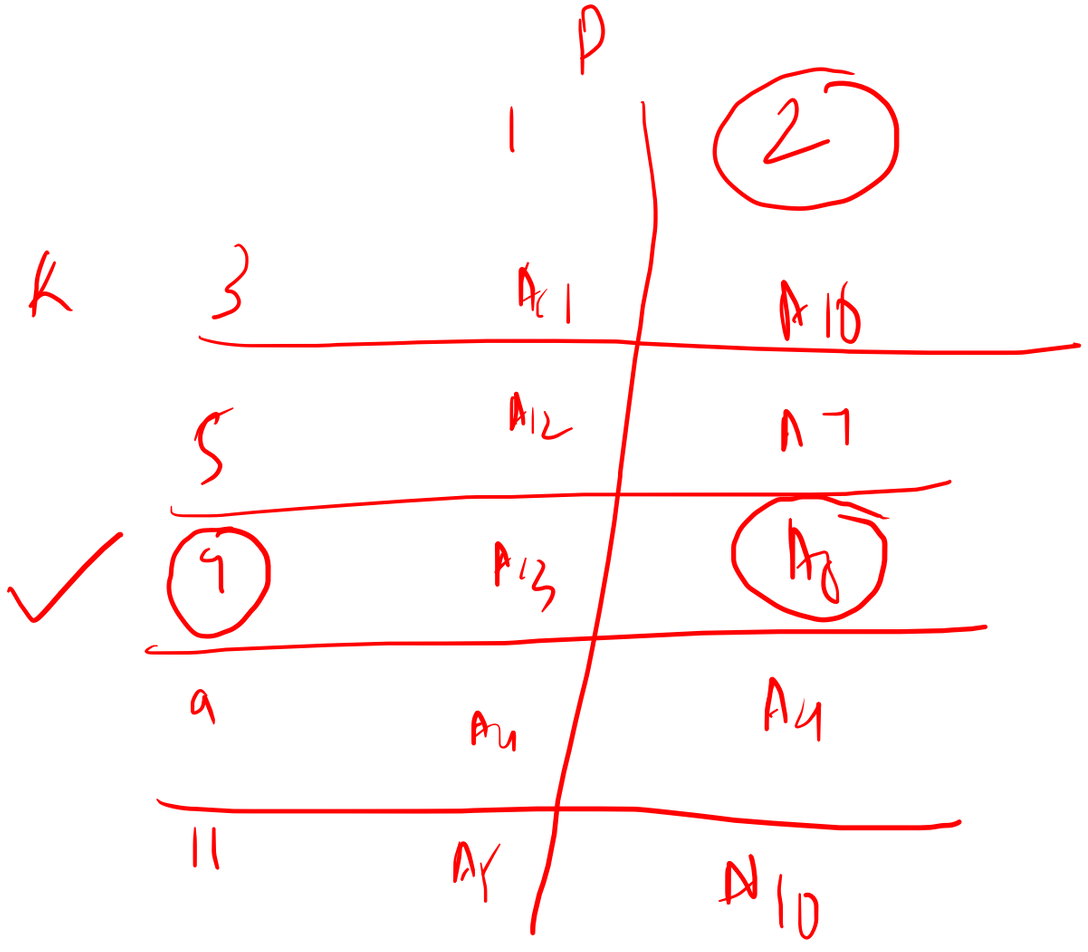
-3 to +3

min_max normalization

↓

0 → 1

$$N_{value} = \frac{x - x_{min}}{x_{max} - x_{min}}$$



$K = 7$

$p = 2$