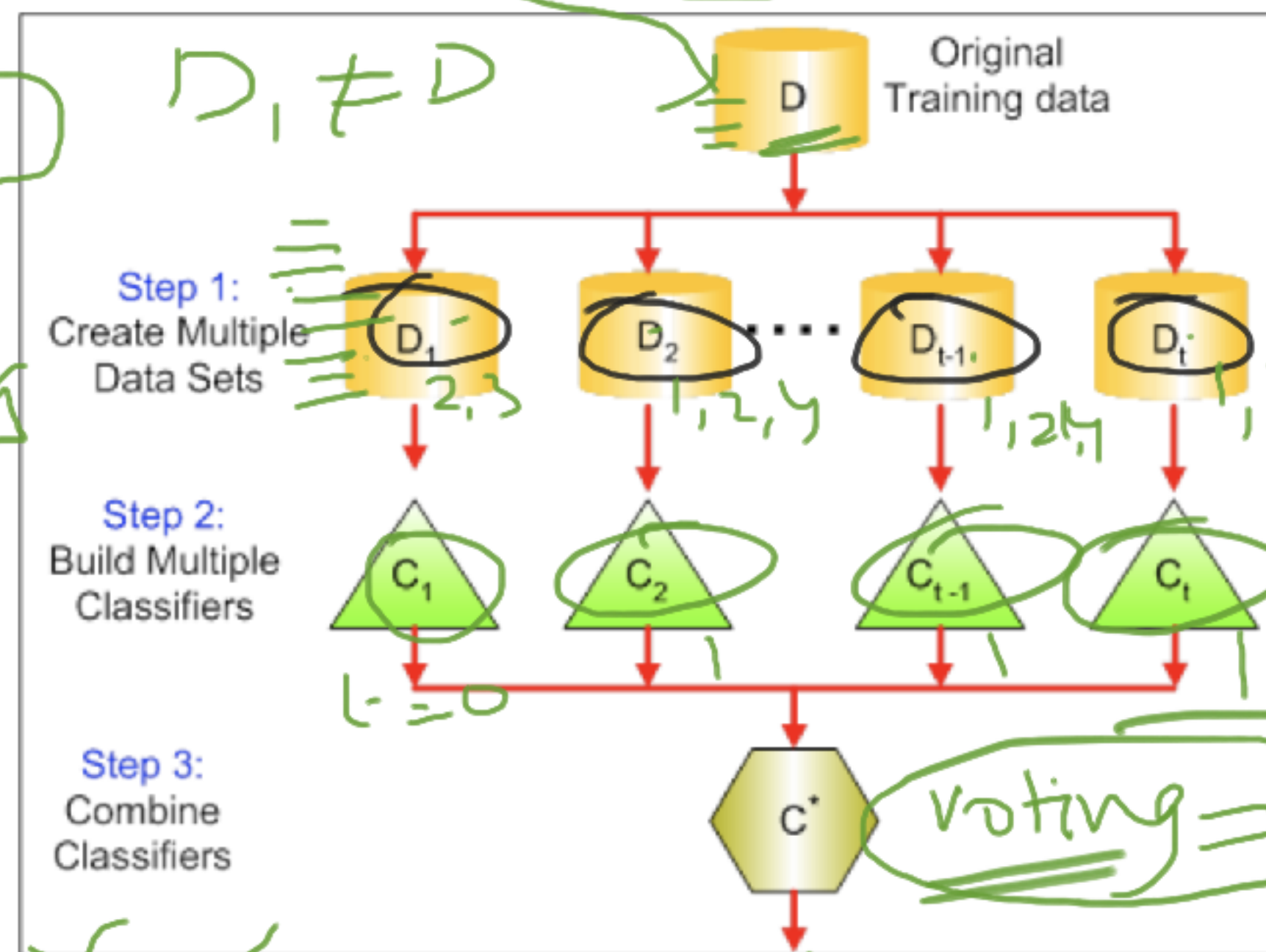


King = King

✓ ↓ ✓ ↓ ↓ ↓

kip = kmg

[illegible][illegible]

"D"

random

2, 3, 4, 5
~~5000~~

averages

voting = 1

$[c_1, c_2, c_3, c_4, c_5]$

row Sampling

~~row~~ ← column

Bagging

→ Random Forest



Random

Row 244

Ensembling →



green → X

Boosting \rightarrow B



Niece

/ / / / /

Utility

↓ Error

Overlooked feature

original dataset

BOOSTING LEARNING PROCEDURE

feature



Original Data



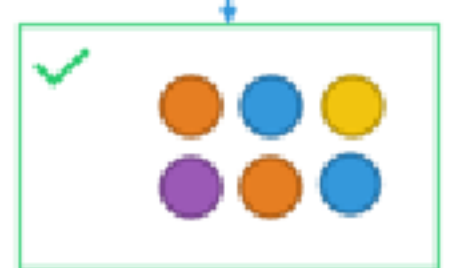
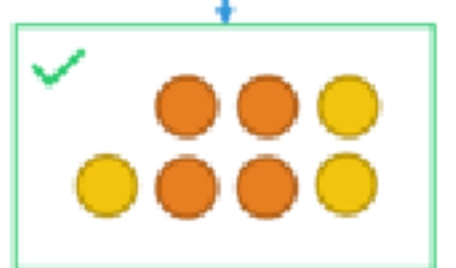
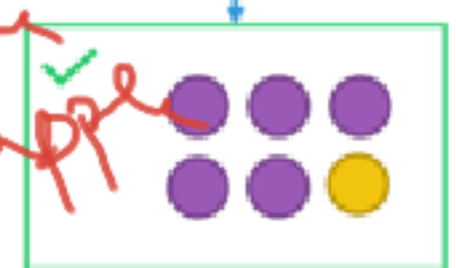
Weighted data



Weighted data



Ensemble Classifier



$$f(x) = \sum_t \alpha_t h_t(x)$$

Weight calculated by considering the last iteration's error

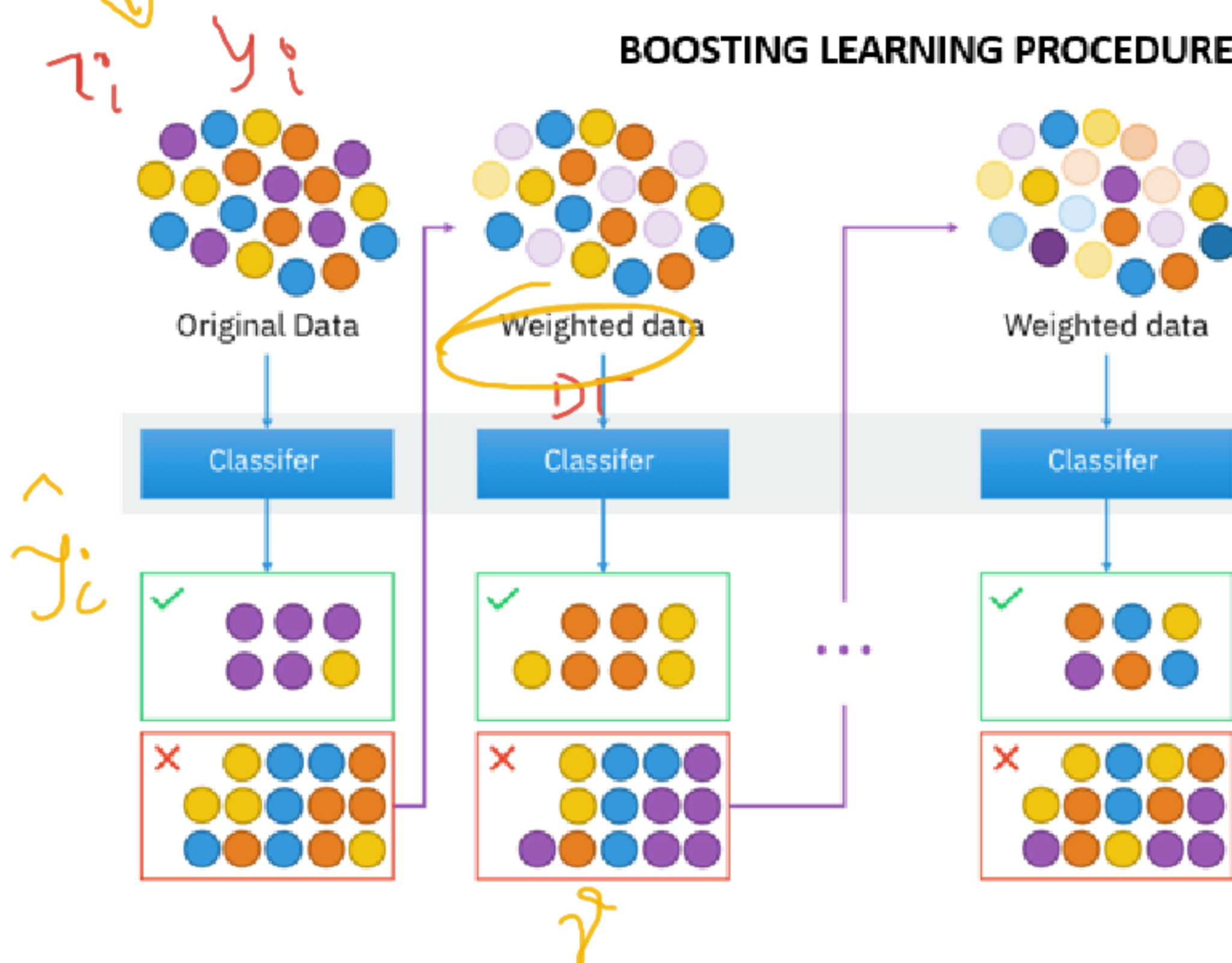
✓ apply
✗ not apply

feature

feature → model → errors

new dataset

BOOSTING LEARNING PROCEDURE



x_i y_i \hat{y}_i $(y_i - \hat{y}_i)^2$

Strong Learner

Weak Learners

$$f(x) = \sum_t \alpha_t h_t(x)$$

Weight calculated by considering the last iteration's error

$$\hat{y}_i = \hat{y}_{i1} + \delta_1 \hat{y}_{i2} + \delta_2 \hat{y}_{i3}$$

