

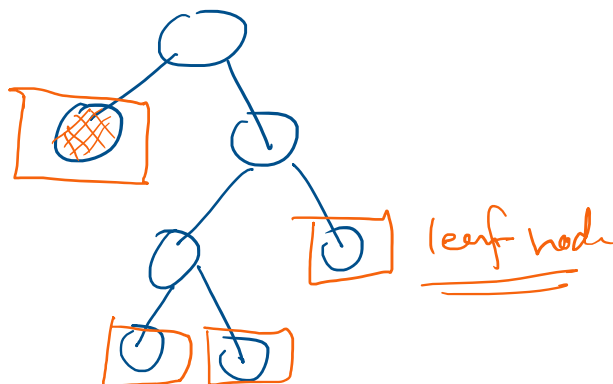
Boosting Algorithms

- (1) Adaboost
- (2) Gradient Boost
- (3) Xg boost

Boosting

Decision tree

Training data



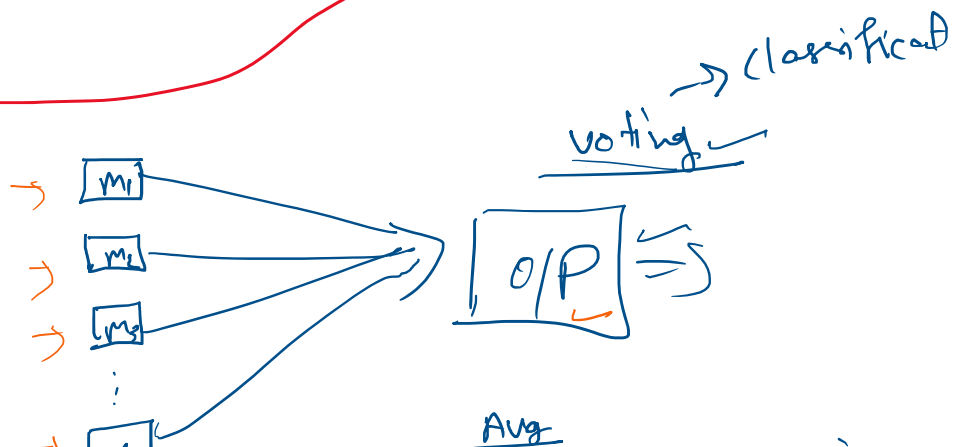
Overfitting

{ Train Acc ↑
Test Acc ↓

{ Low Bias
high Variance

=> Random forest =>

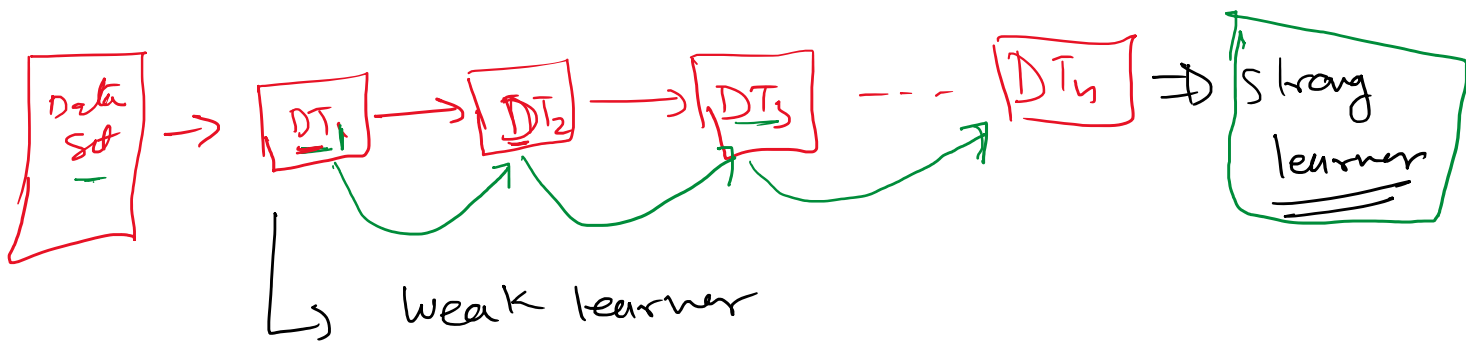
{ Low Bias
Low Variance





Avg
↳ for Regression

Boosting { Decision tree sequentially connected }



Weak learner - Haven't learnt much from the training dataset

Bagging -> Random Forest -> Majority Voting [Avg of all]

Boosting -> Assignments of weights to the weak learners

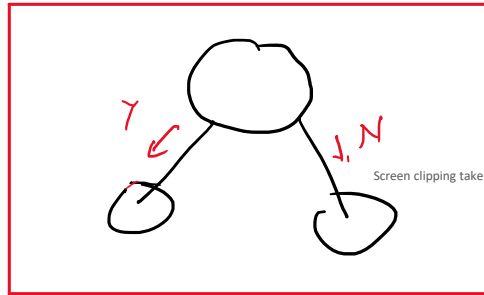
$$f = \alpha_1(m_1) + \alpha_2(m_2) + \alpha_3(m_3) \dots \alpha_n(m_n)$$

$\{\alpha_1, \alpha_2, \alpha_3 \dots \alpha_n\} \Rightarrow$ weights

Adaboost Classification (Boosting Technique)

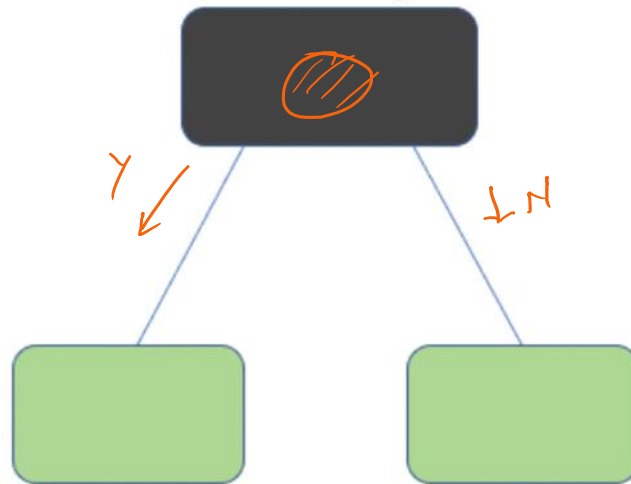
Adaboost Classification (Boosting Technique)

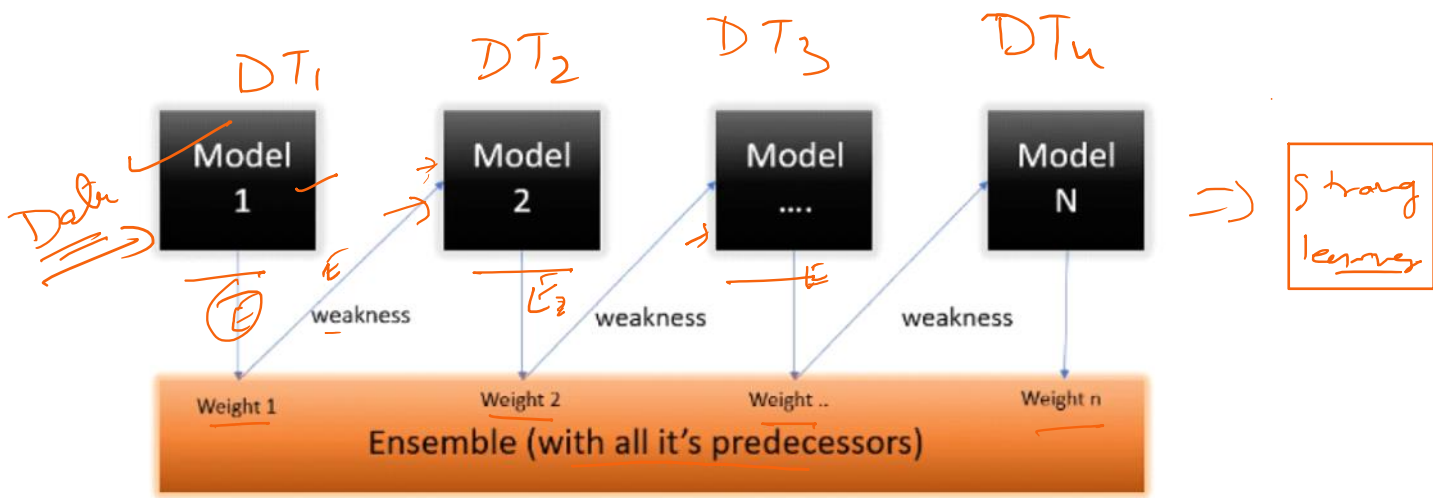
① Decision tree Stump



Decision tree

Stump





Screen clipping taken: 06-10-2024 07:28 PM