

DATE : 05.08.2024

DT/NT : NT

LESSON : MACHINE LEARNING

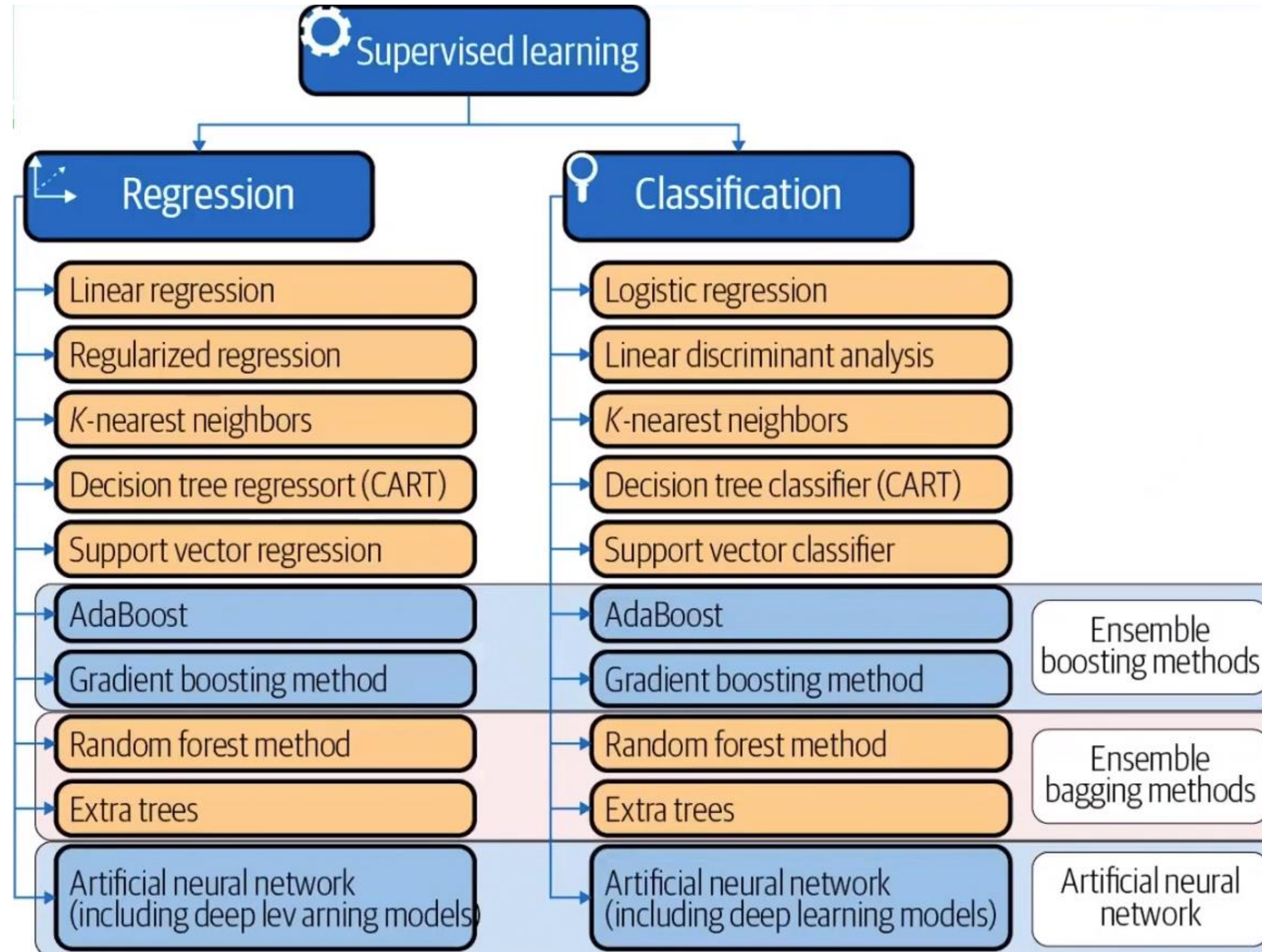
SUBJECT: RANDOM FOREST

BATCH : 247



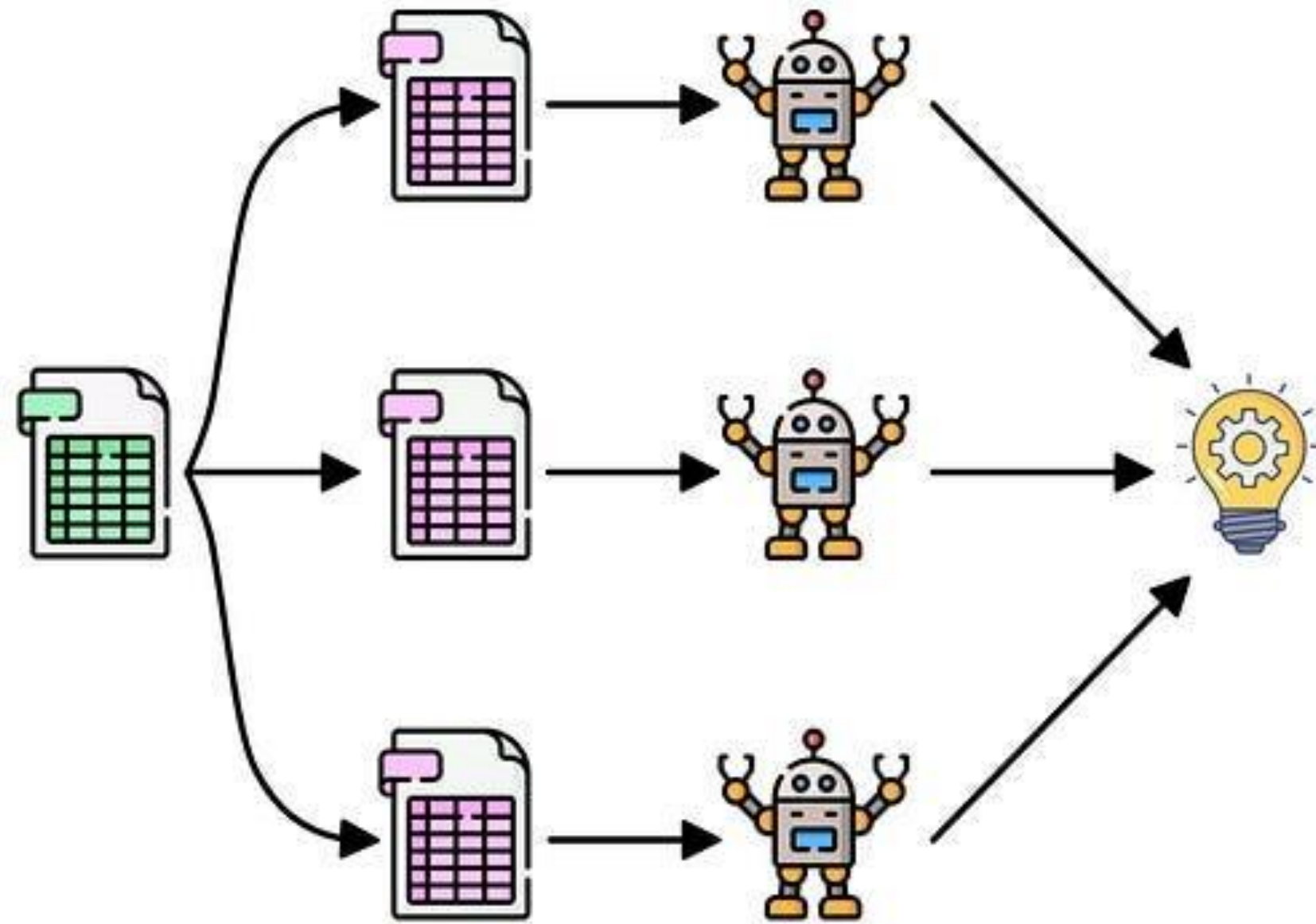
TECHPRO
EDUCATION

Where We Are?



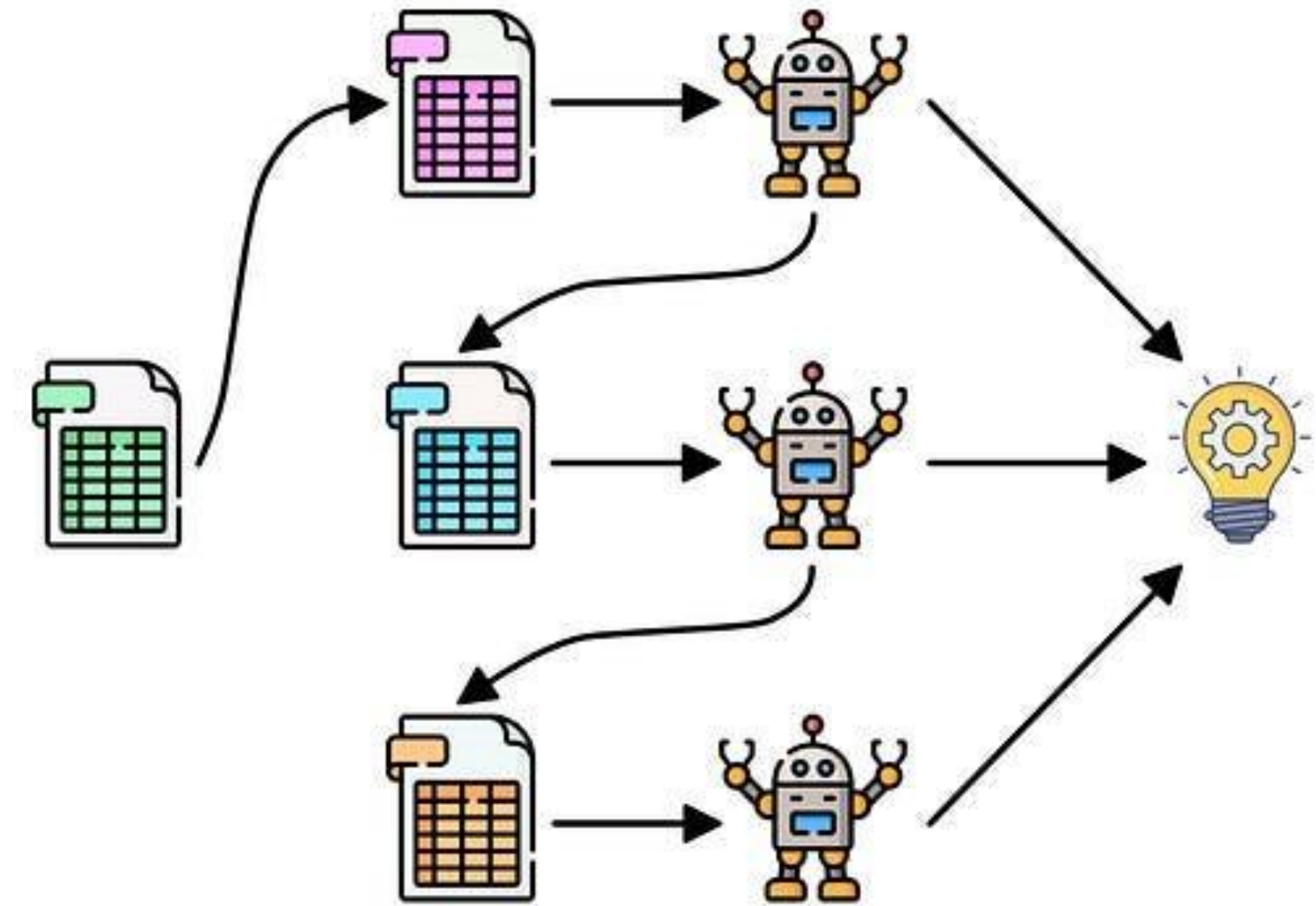
Ensemble Methods

Bagging



Parallel

Boosting



Sequential

Bagging (Bootstrap Aggregation)



Boosting

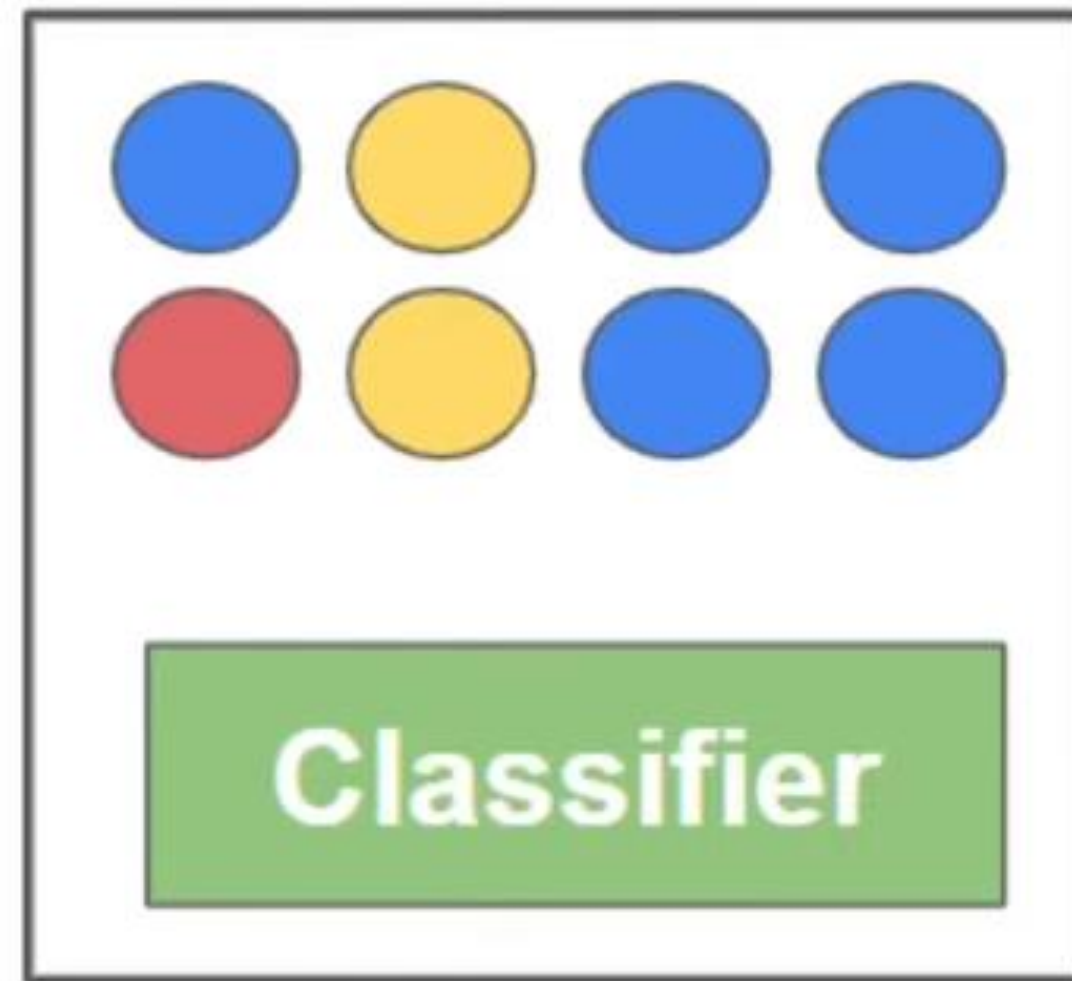


Datasets

Both methods build a separate dataset for each model, but ...

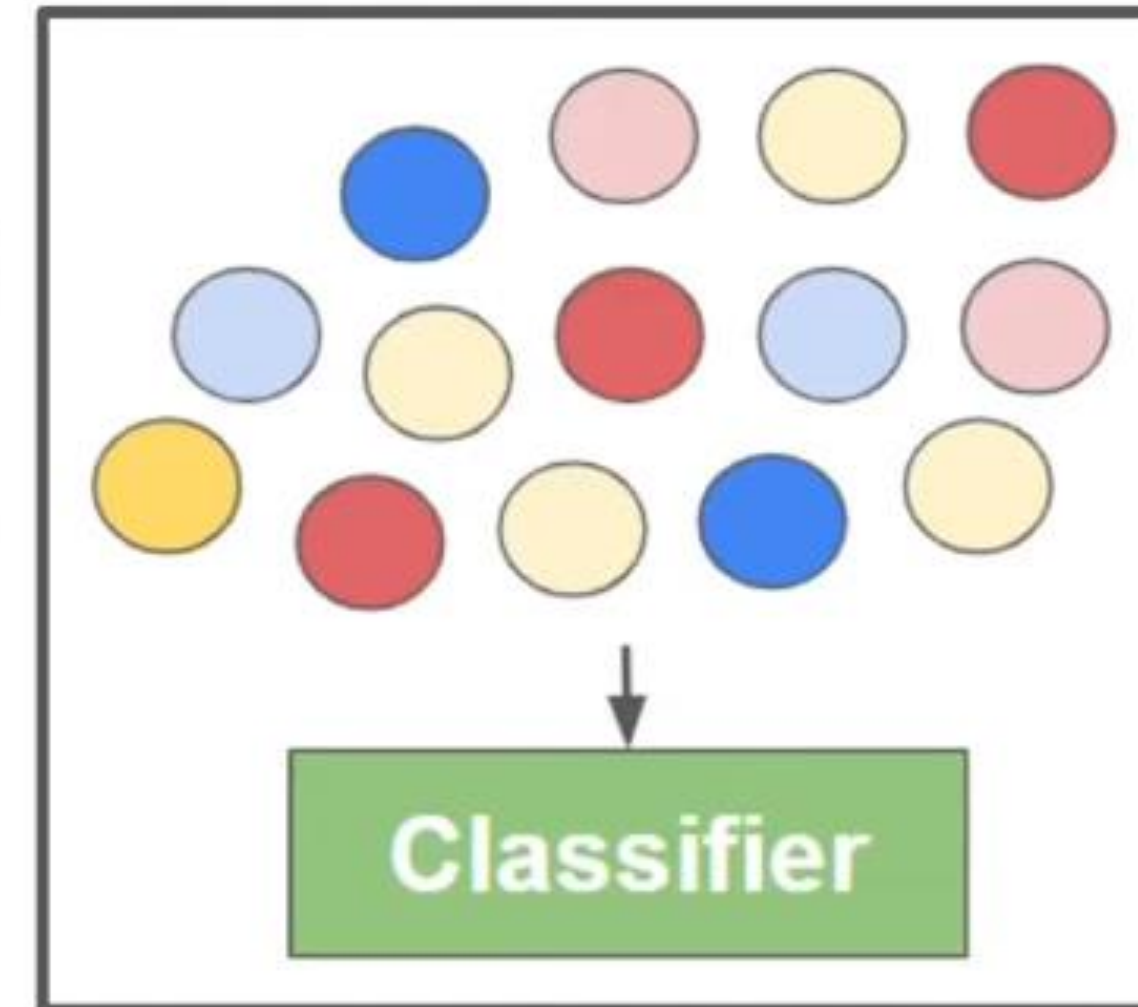
Subset

Bagging



Same Dataset

Boosting



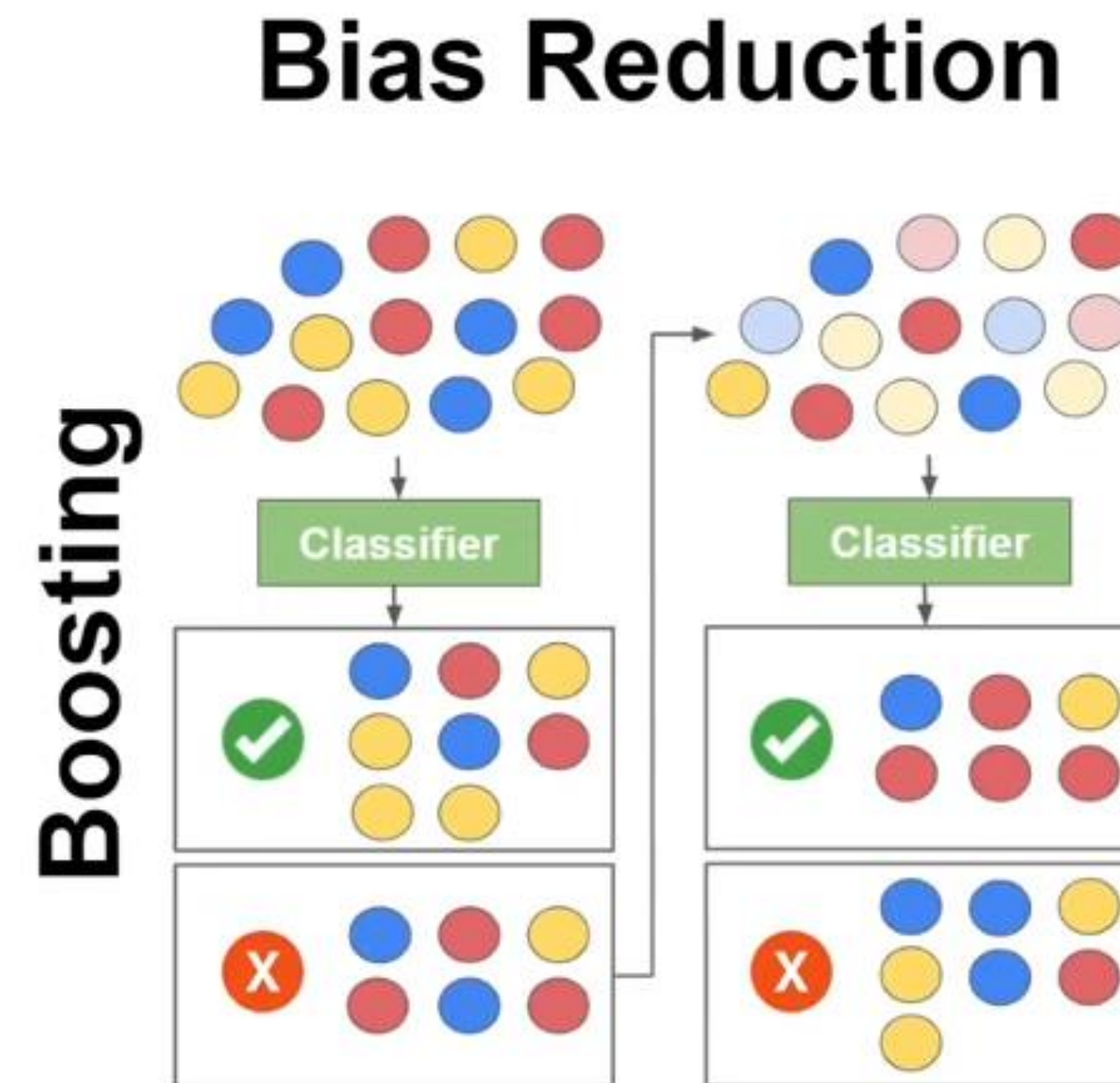
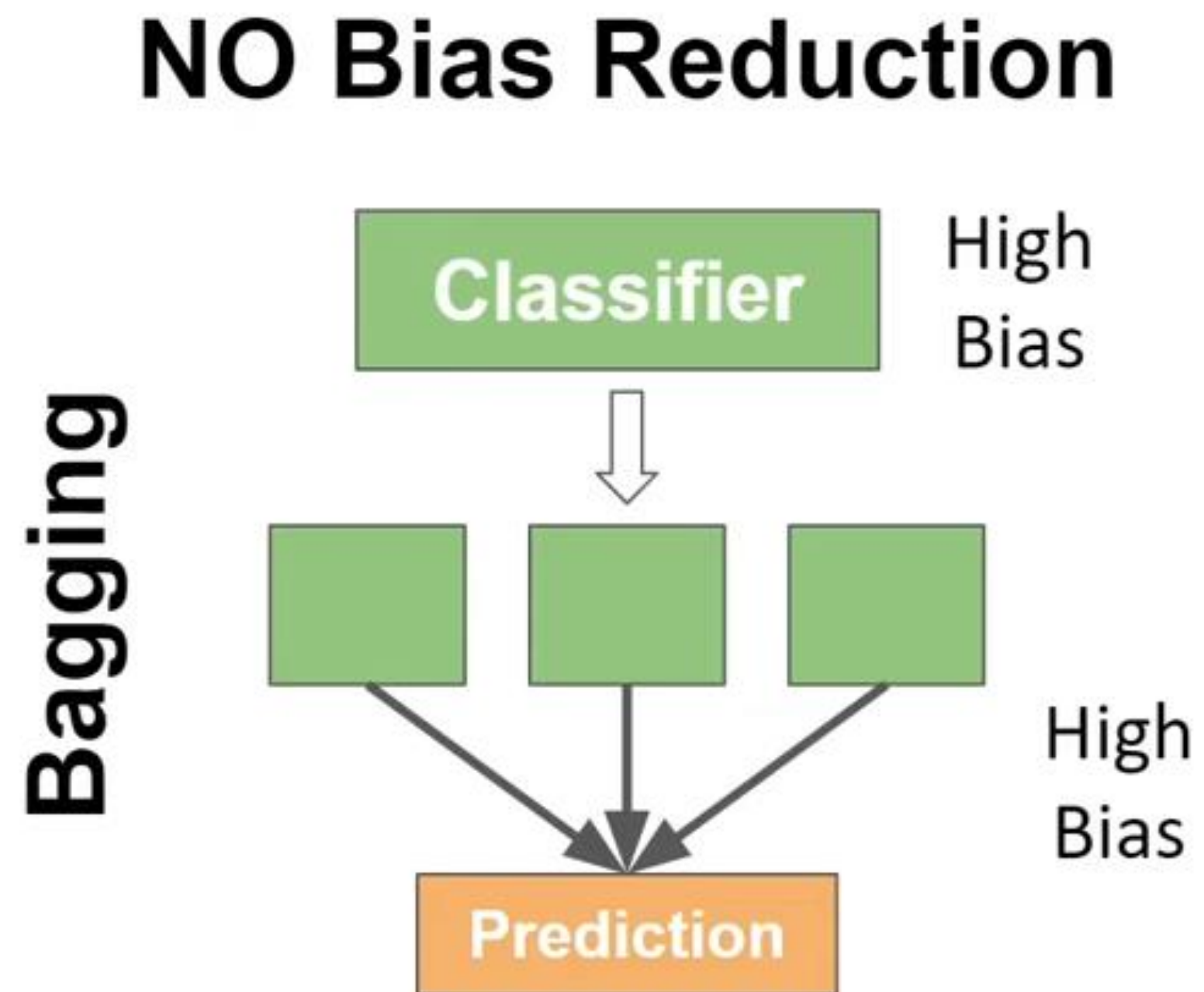
Predictions

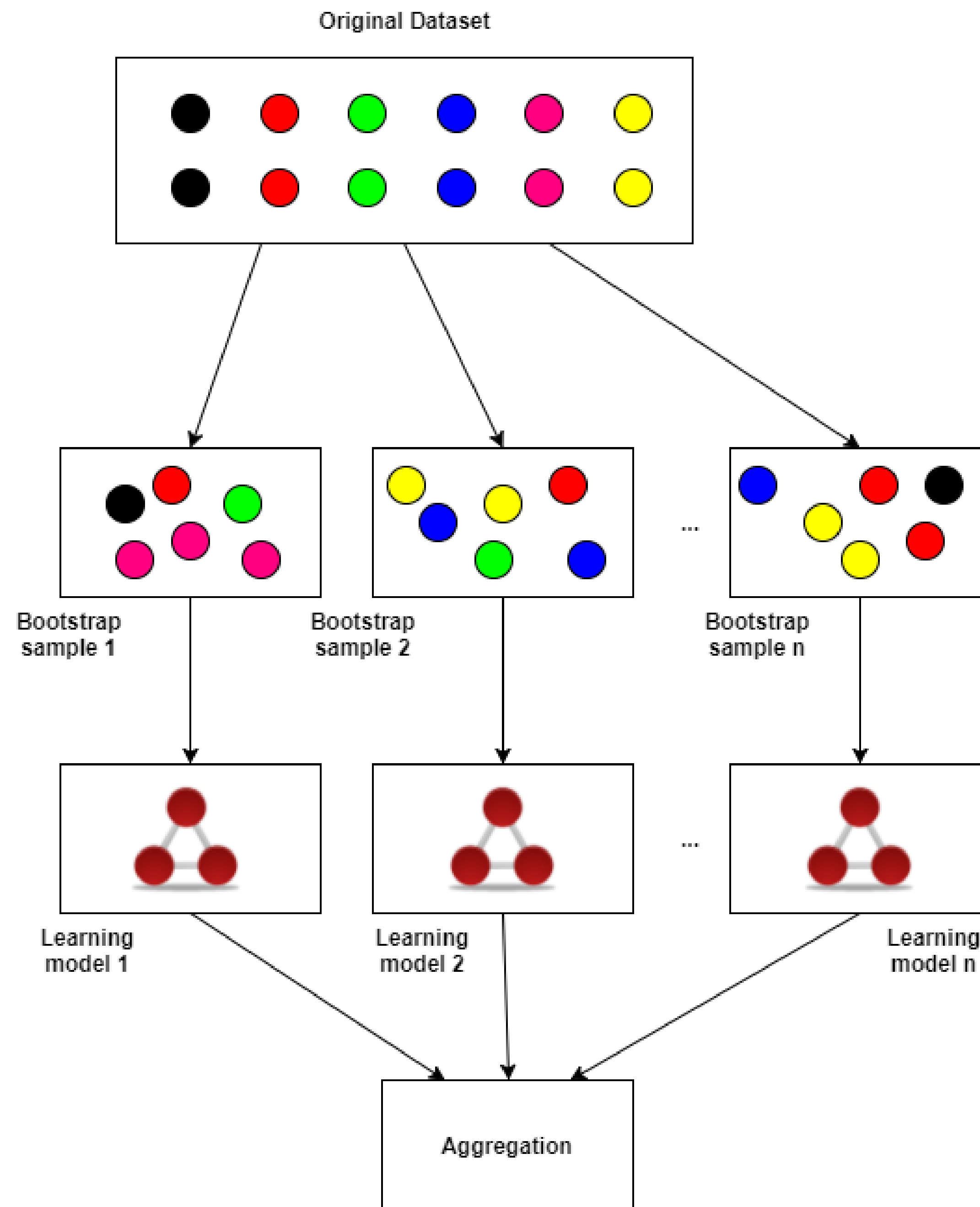
Both methods make predictions by taking the average of the models, but ...

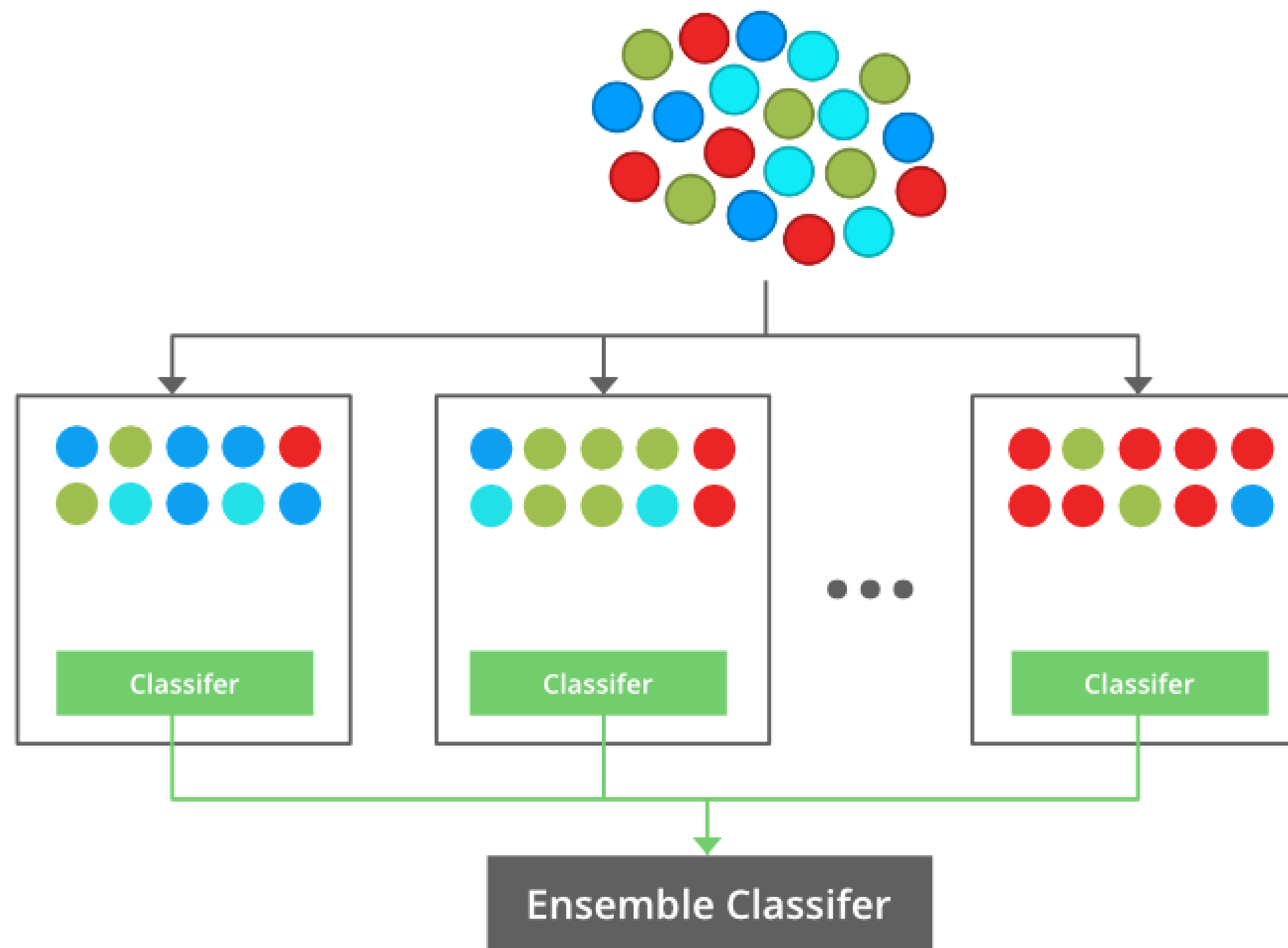


Bias And Variance

Both methods are good at reducing the variance, but ...





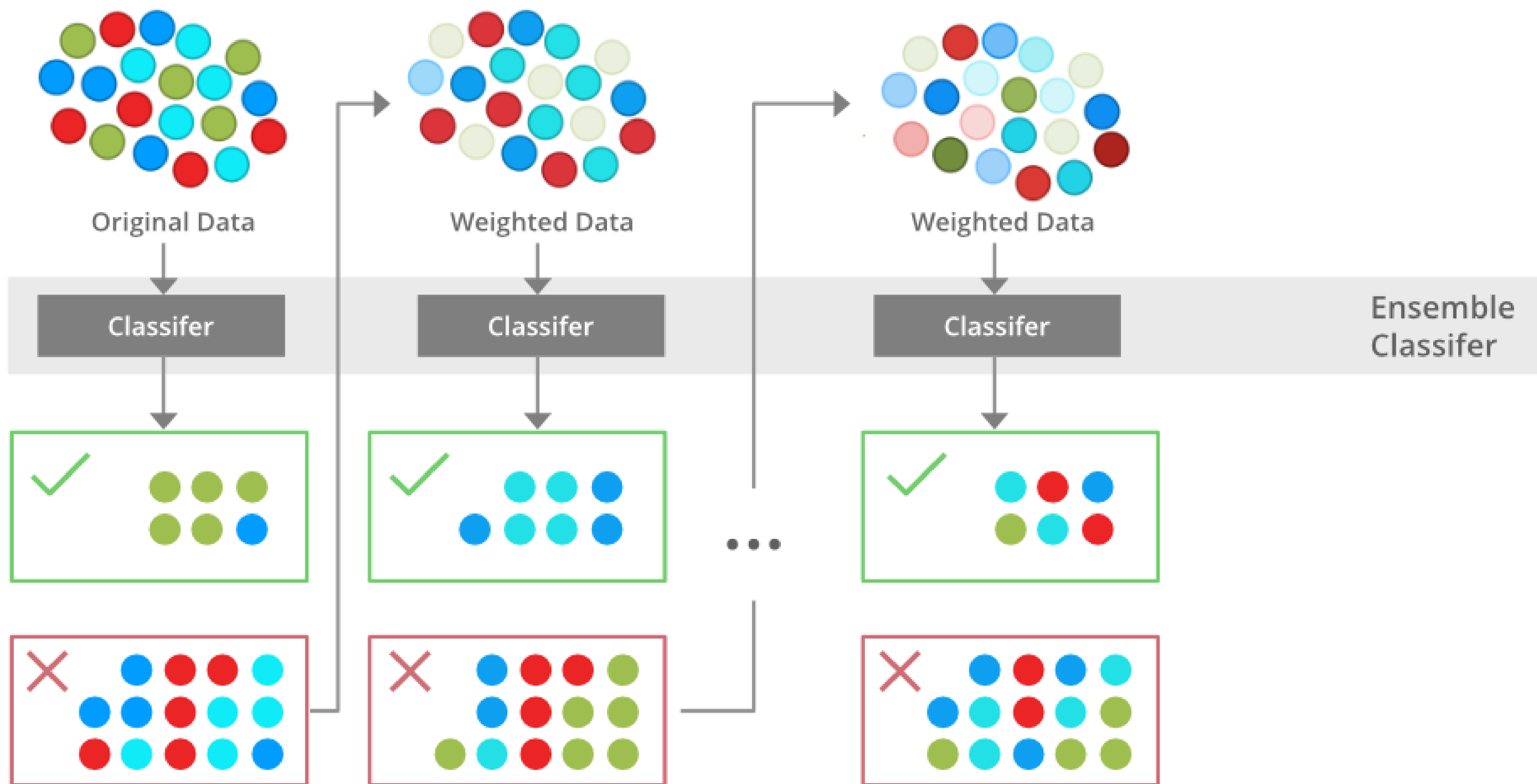


Original Data

Bootstrapping

Aggregating

Bagging



Decision Tree



vs

Random Forest



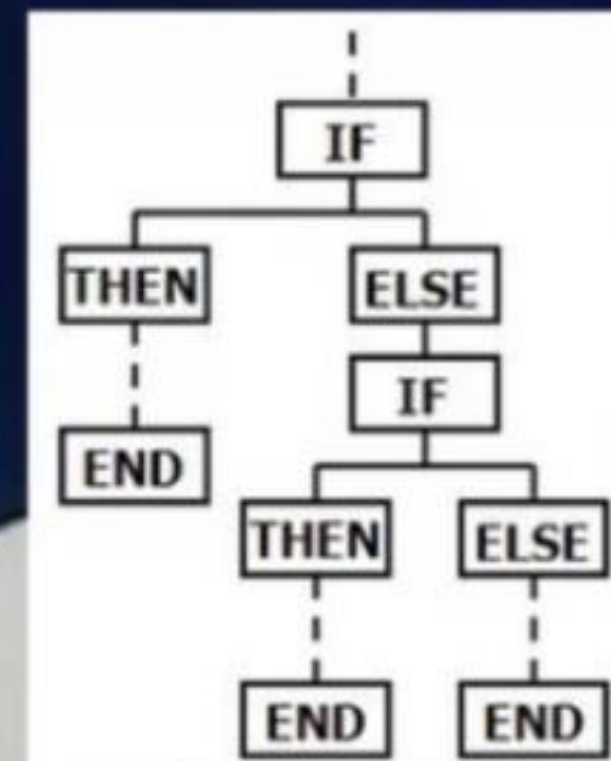
RANDOM, FORREST, RANDOM!





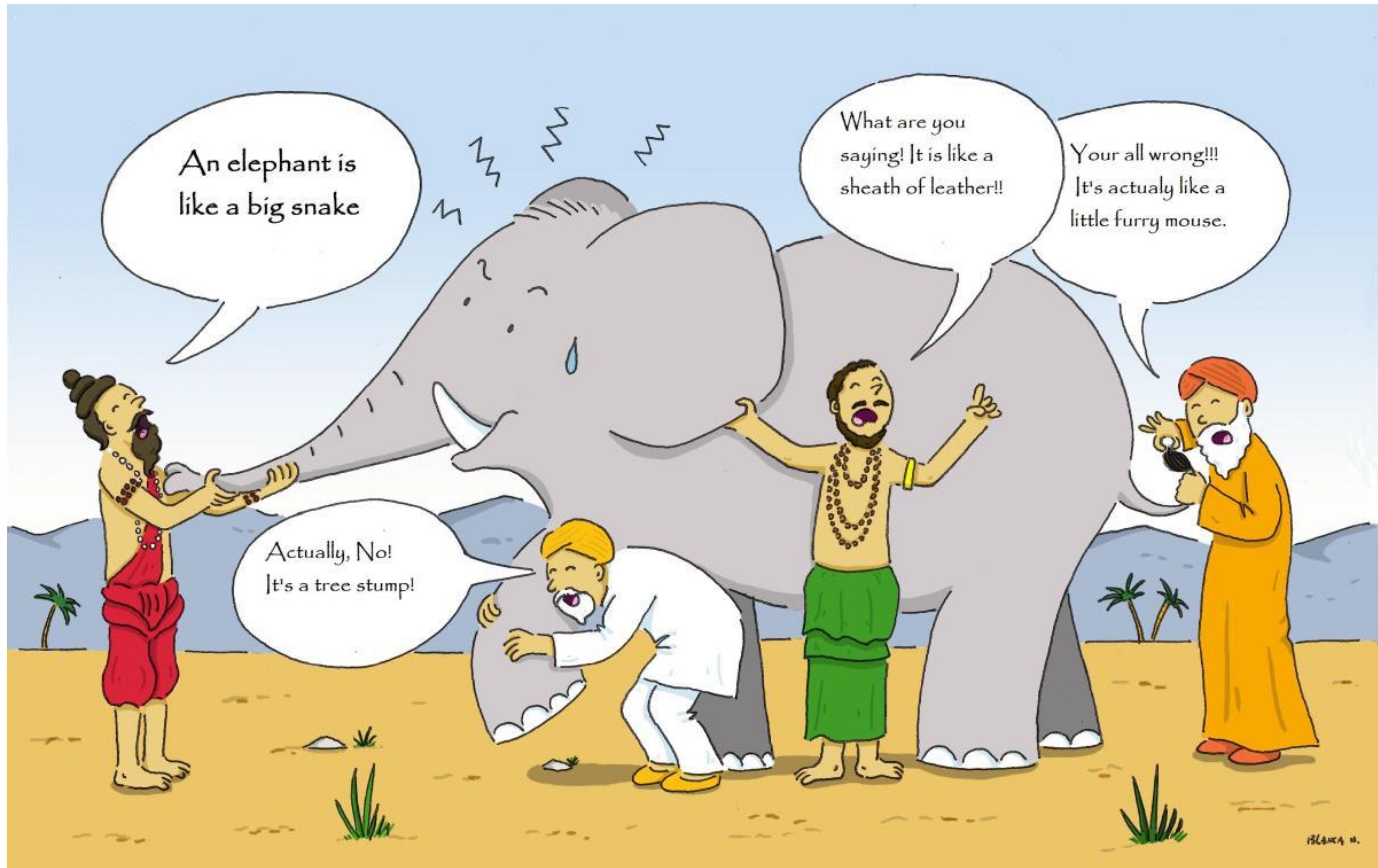
RF

Random Forest

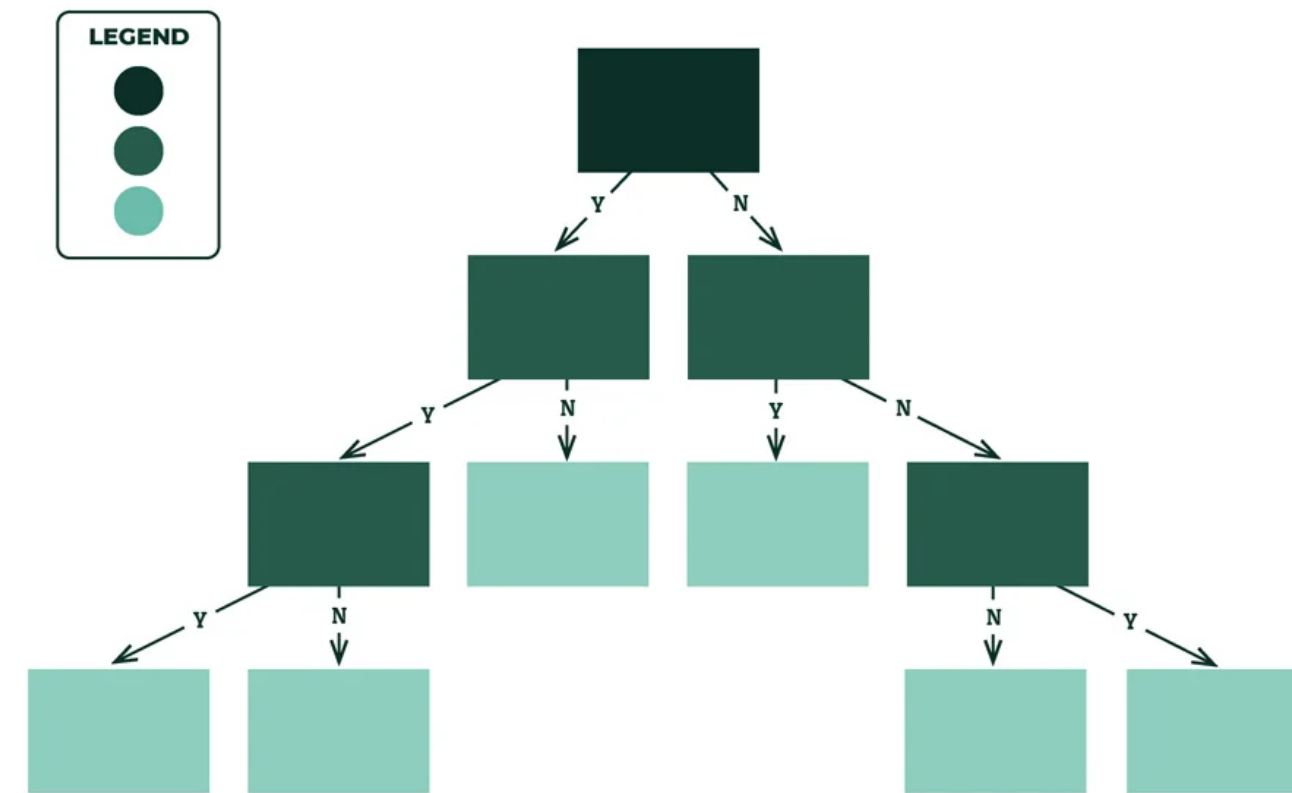


RF

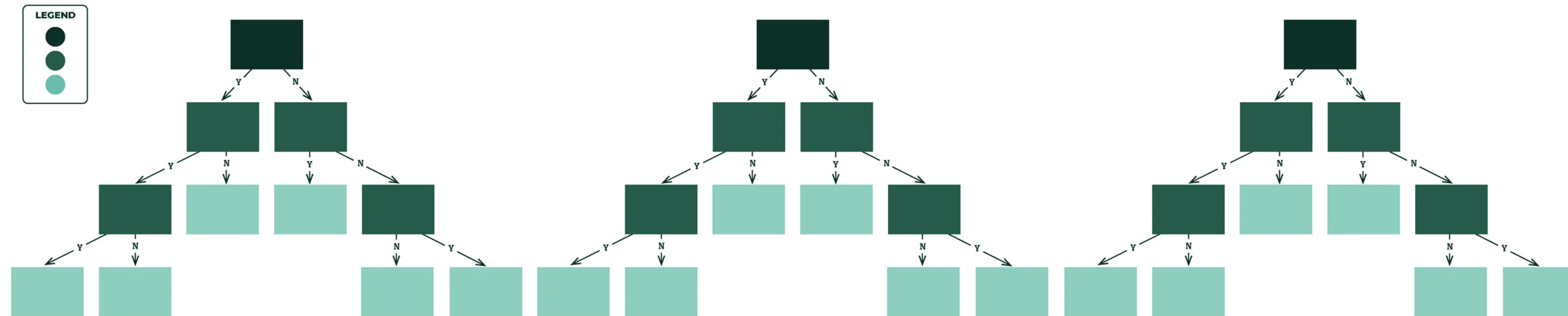
Decision tree

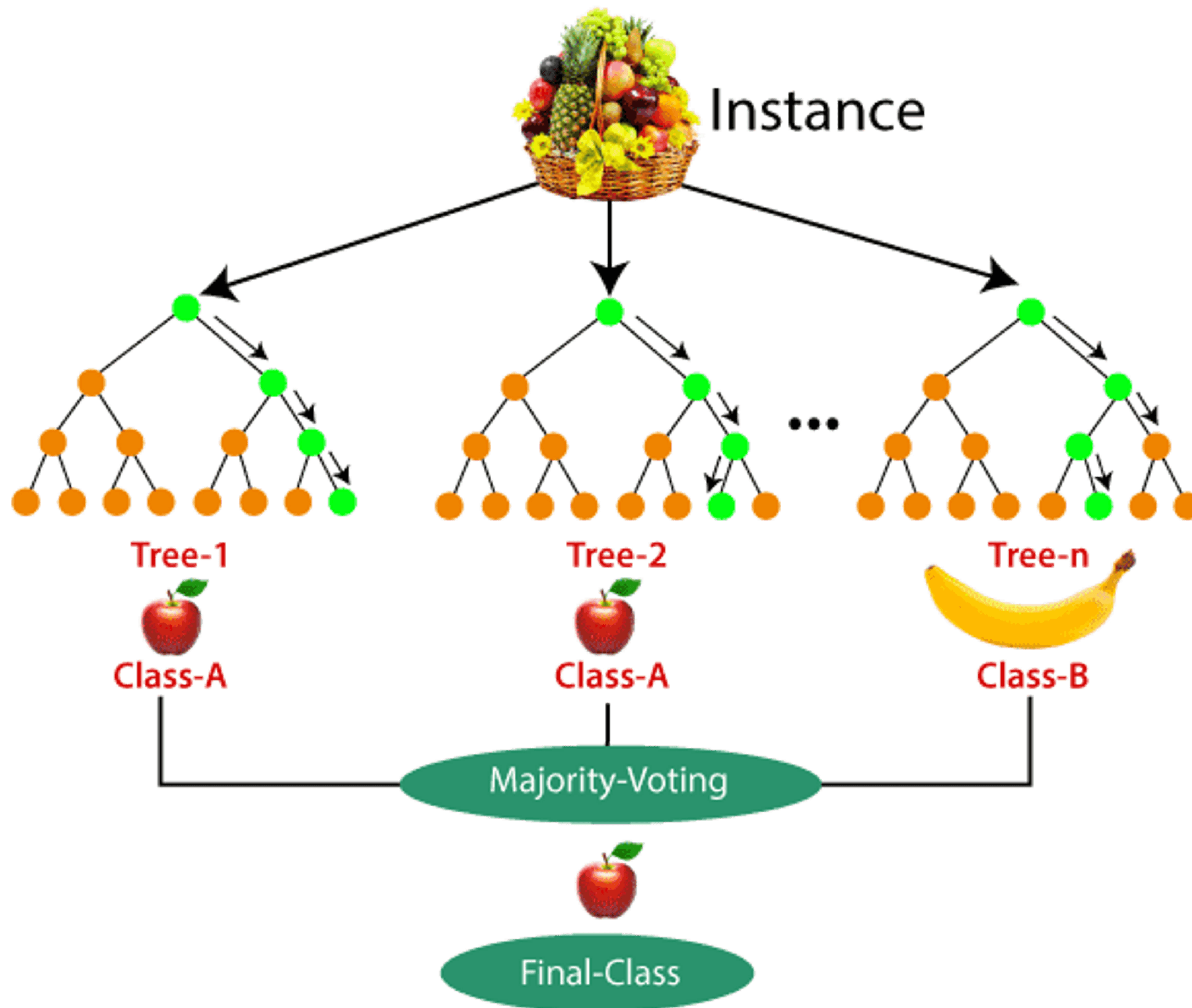


DECISION TREE



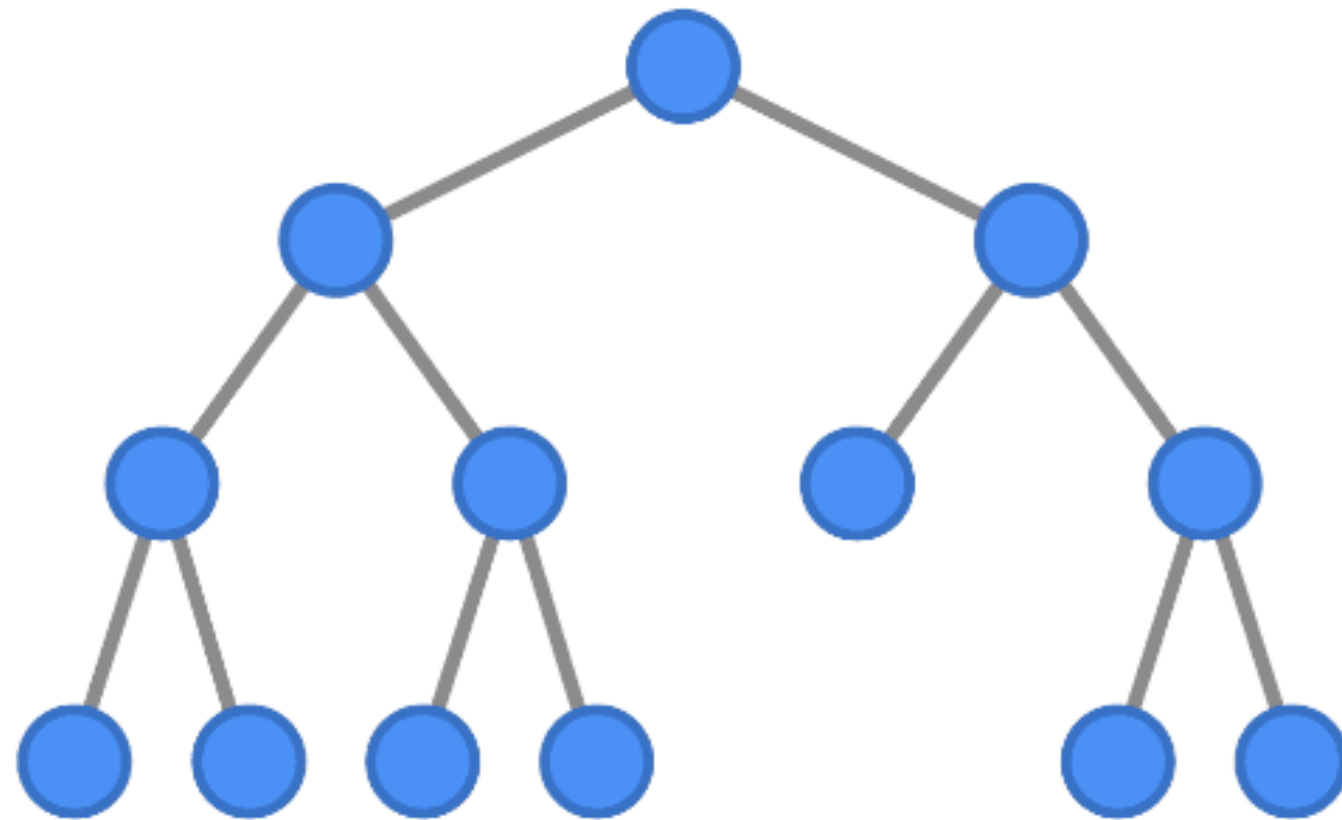
RANDOM FOREST



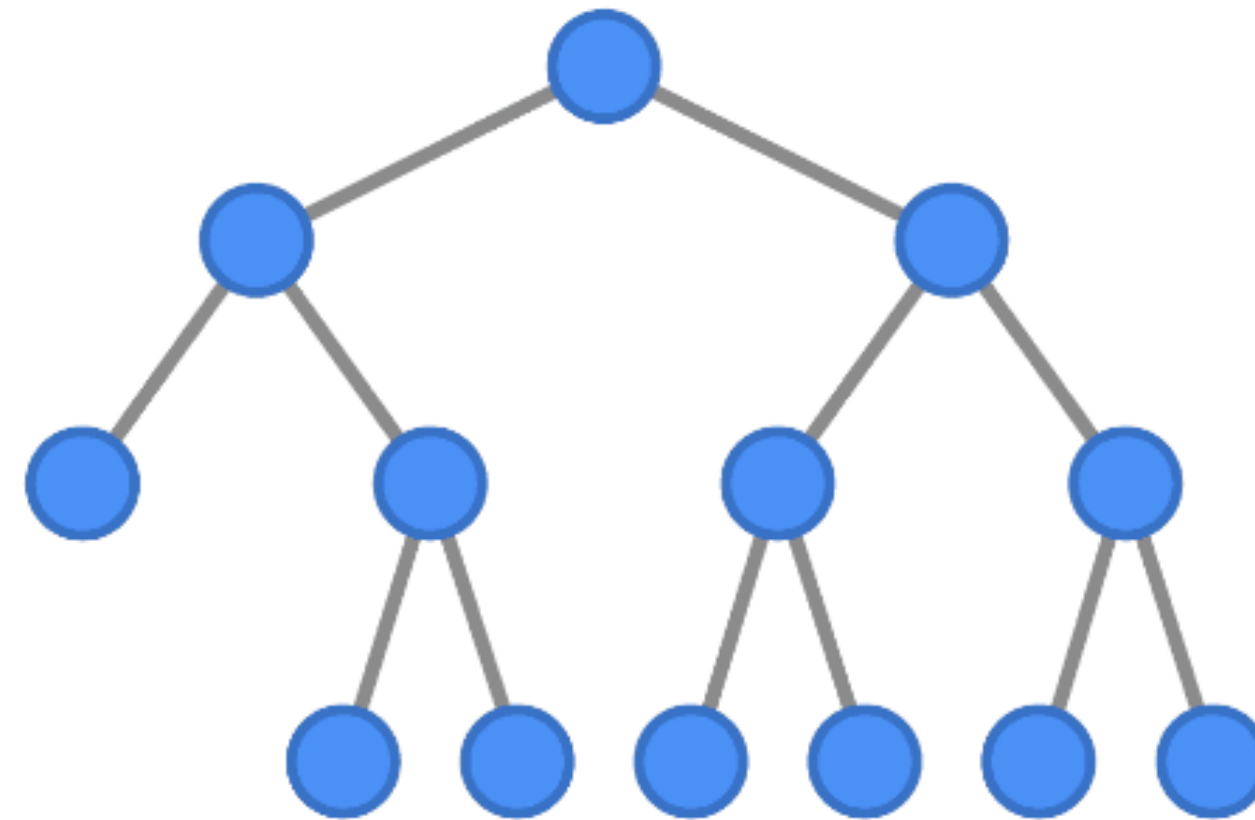


EXAMPLES

Tree-1

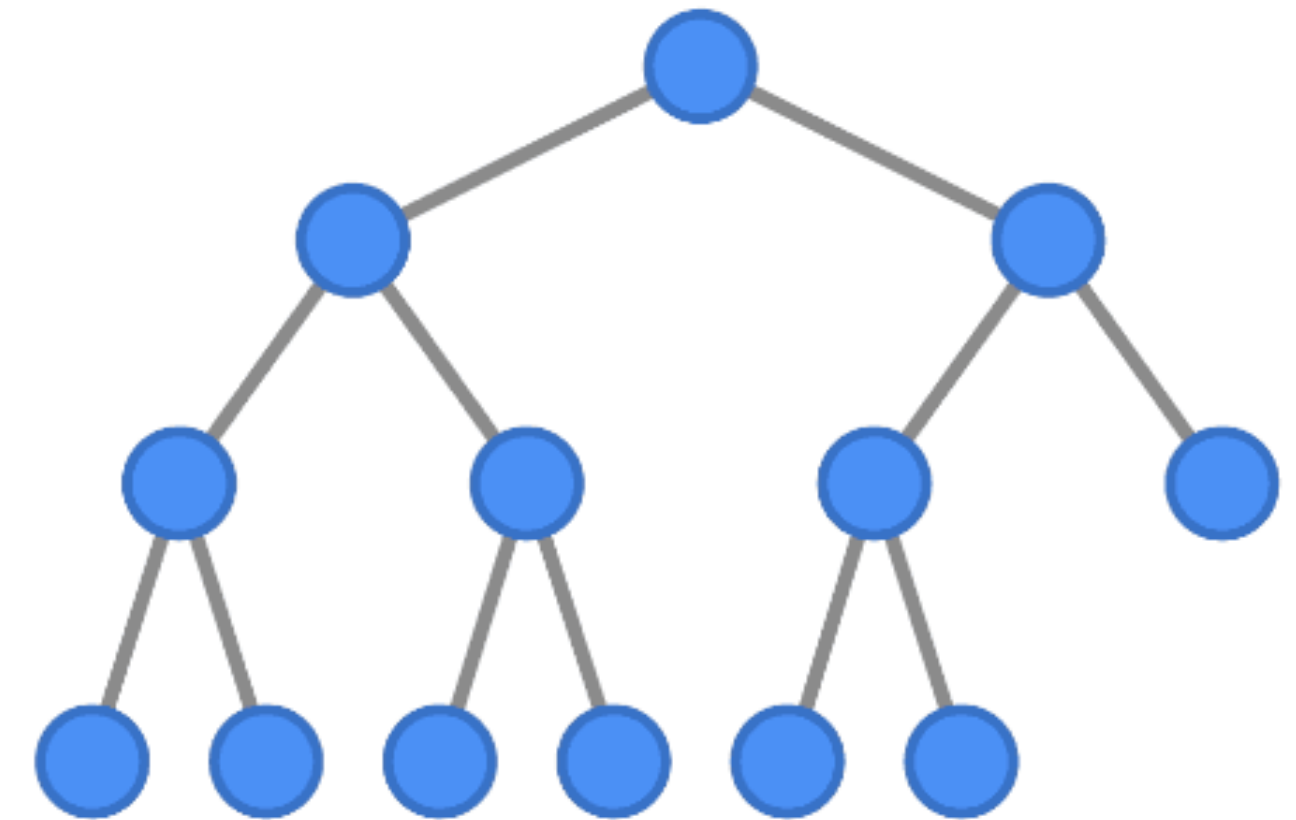


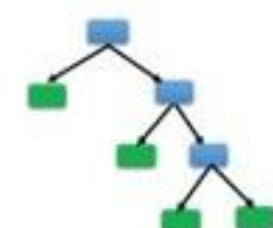
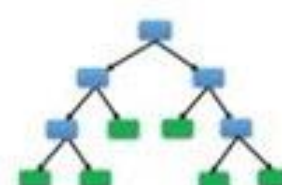
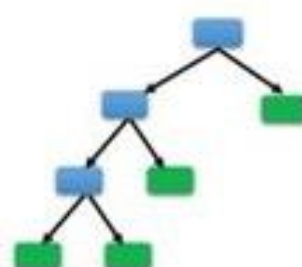
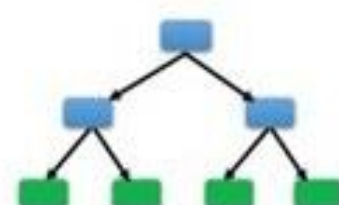
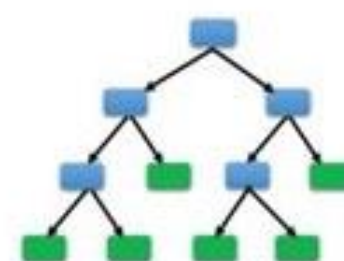
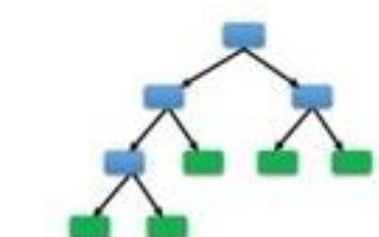
Tree-2



...

Tree-n





Random Forest in Action!!!

Advantages of Random Forests

Robustness

Scalability

Easy to Use



Tea break...

10:00

