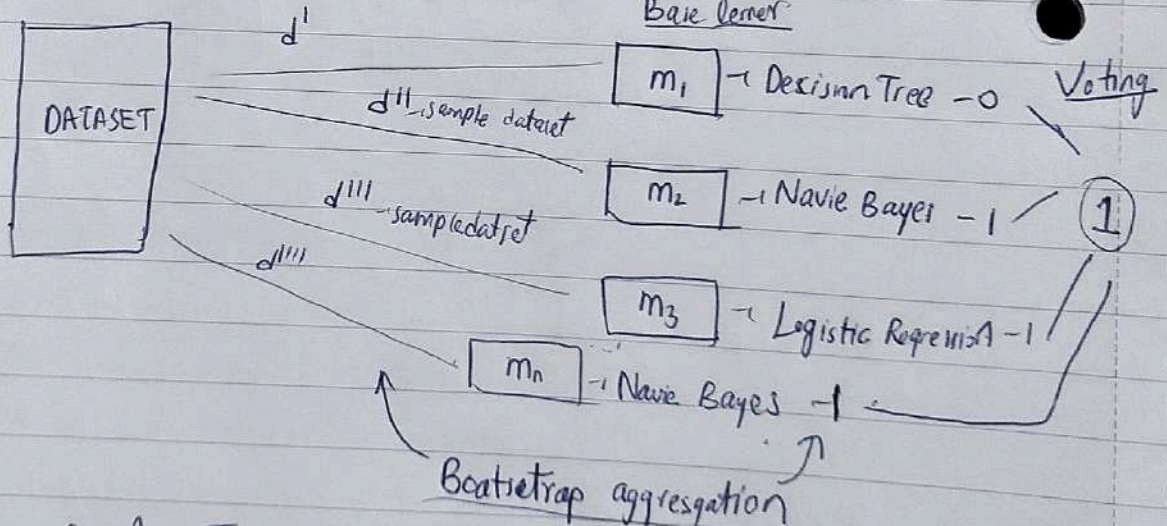
Ensemble Technique

① What is ensemble?
Combining Multiple models => TRAIN => PREDICTION

Two types
① Bagging
- Random Forest Classifier and regressor

② Boasting
① AdaBoast
② Gradient Boast
③ Xgboast

Bagging Techineque: -we create multiple independent model d'=sample dataset

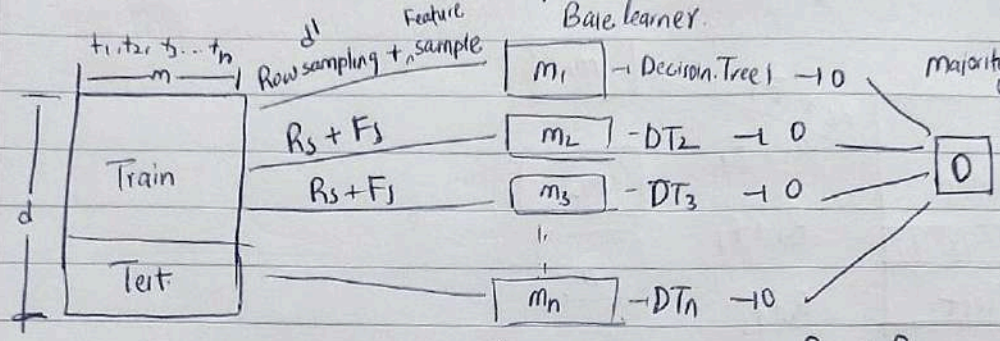


Custom Bagging Techinque

Regression { Avegre of all o/p -> Prediction }

→ In Random Forest Classifier we specifically used Decision Tree.

Random Forest Classifier & Regressor



m = features → d' < d m < n

New Test Data

Rs → Row sampling

Fs → Feature sampling.

{ if Regression → Average of all the model o/p }

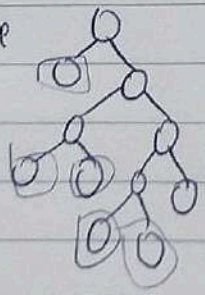
Note

Classification → Majority Voting Classifier

Regressor → Average o/p of all the models

① Why Should we use Random Forest instead of DT?

Decision Tree



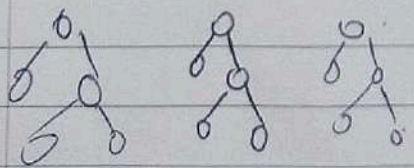
→ Overfitting

Training Acc ↑↑ → Low Bias

Test Acc ↓↓ → High variance

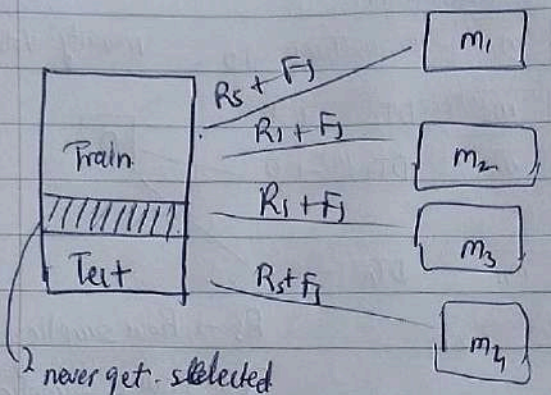
Generalized Model

Low Bias, Low variance



all will be expert in something

Out of Bag score



never get selected

so, out of Bag Data

⇓

Validation data → Performace and accuracy of RandomG

⇒ oob score = 85%, 90%, 77%

oob_score = True