Ensembles and its techniques

① data
↳ Model ! → train → Prediction

② data
→ M1
→ M2
→ M3
→ M4
→ M5
→ Combine → prediction

Analogy
↳ DS jobs
→ Mentor-2 ML
→ Mentor-1
Ajay → data Analytics
Vishwas ML
ML

→ One person might give you wrong advice
→ you will connect to multiple mentors
→ Chances of getting wrong is minimized when you connect to multiple person.

Ensembles : Combine multiple models
: Prediction → more stable and accurate as compared to individual model.

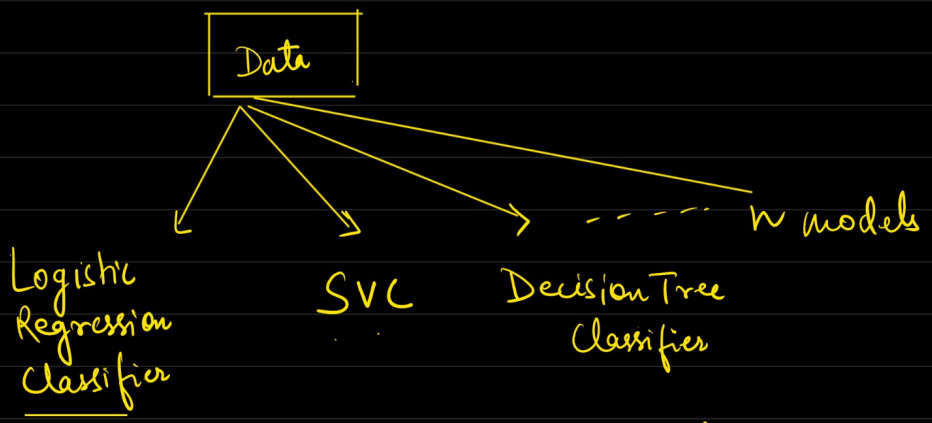
① (of same Algorithm)
- DT_1 – (max depth - 5)
- DT_2 – (max depth - 10)
- DT_3 – (max depth - 12)

② (different Algorithm)
- → Logist Reg
- → SVC
- → DTC

* Ensemble : Not necessarily only one type of Algorithm.

Ensemble techniques
- Parallel technique (Bagging)
- Sequential technique (Boosting)

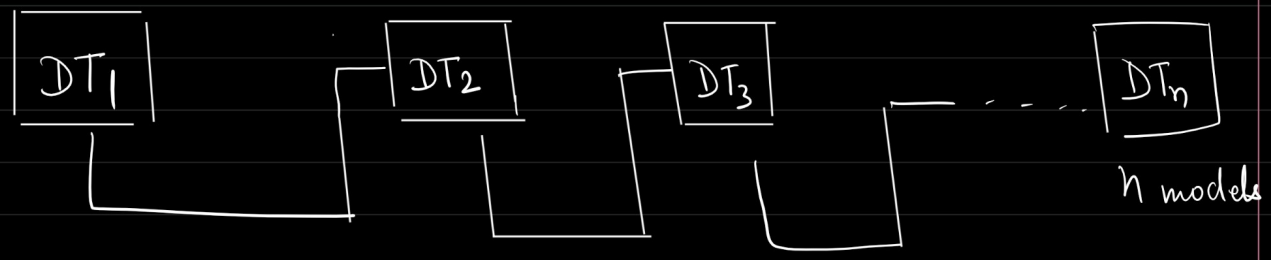
Parallel technique of Ensembles



→ All of the models here are built parallely and independent of each other.

* Sequential technique of Ensemble

→ All the models are built sequentially and dependent on each other.



→ learning from mistake.

* Ensembles technique
  - Parallel
  - Sequential

* Ensemble models
  - Bagging
  - Boosting
    1. Adaboost
    2. Gradient Boosting
    3. XGboost

① Custom Bagging ← Reg
Classifier
② Random forest — Reg
Classifiers.

* Bagging Technique