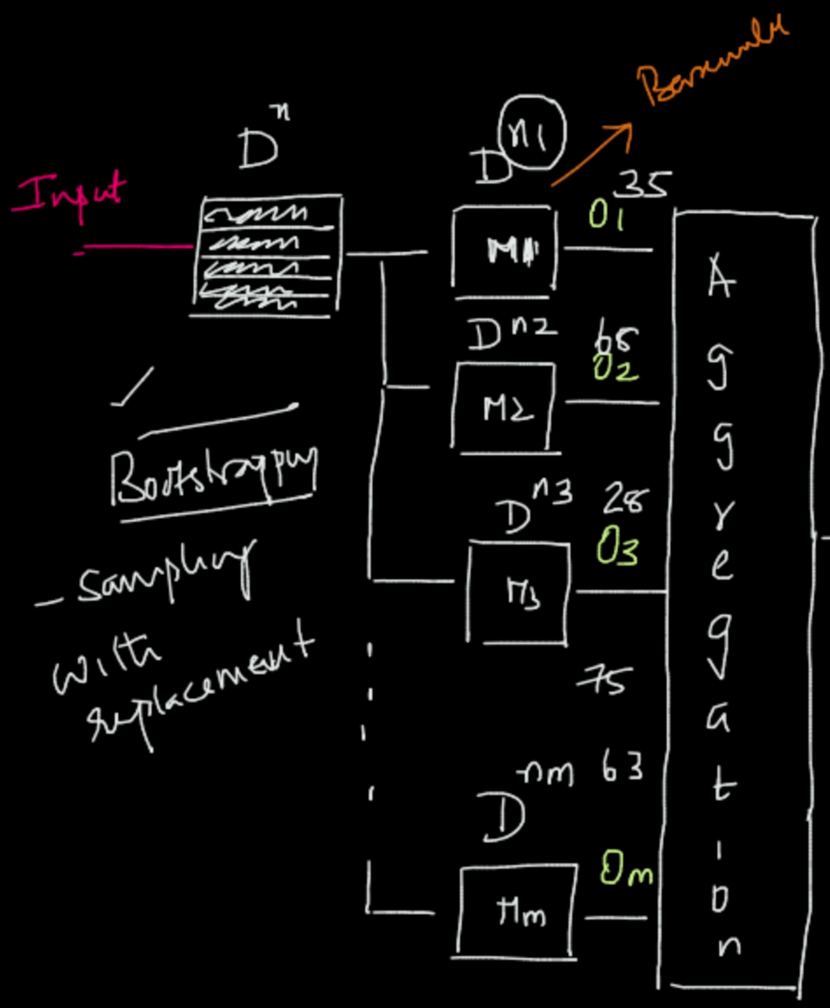
Ensemble

- Bagging ✓
- Boosting

Bagging — Bootstrapped Aggregation



50L

→ 48L

$M_1, M_2, M_3 -$ Mn → Base Model

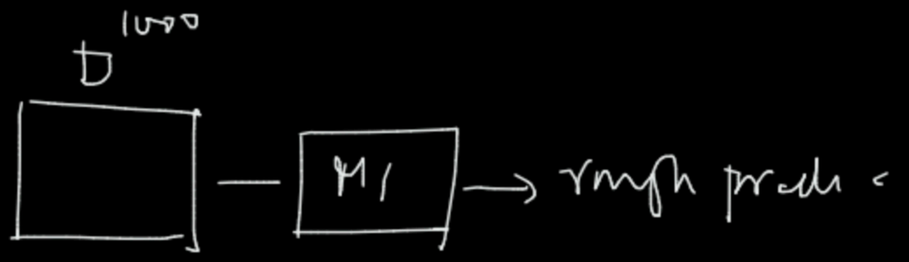
Bagging reduces Variance

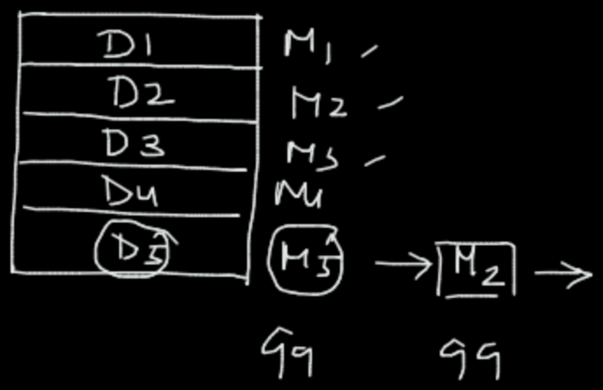
Base Models → High Variance + Low Bias ↓

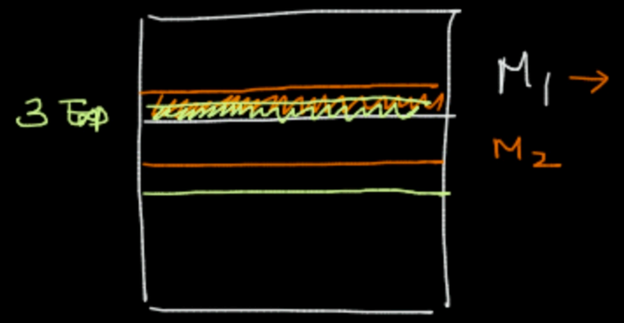
→ Low Bias & Low Variance Model

5 Experts → 1 person BTM → Acc = 99%
→ 2 person Indr → 70 ✓
→ 3 person Chn → 78
4 person Amp — 87
5 person John — 68

85% 99 →



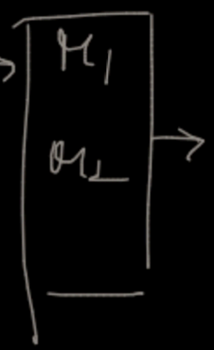




Bias = 0

Decision Tree → Max_depth = 64 ✓

Bias = 0 / Variance →



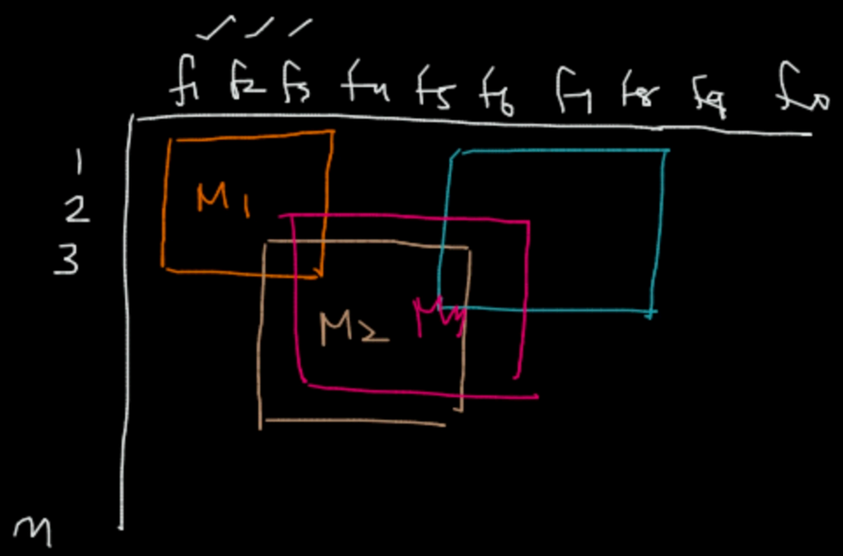
Low Bias + Low Var

RandomForest

— All base models are DTree

— Row sampling + Column Sampling

1000 Rows → 200 Rows



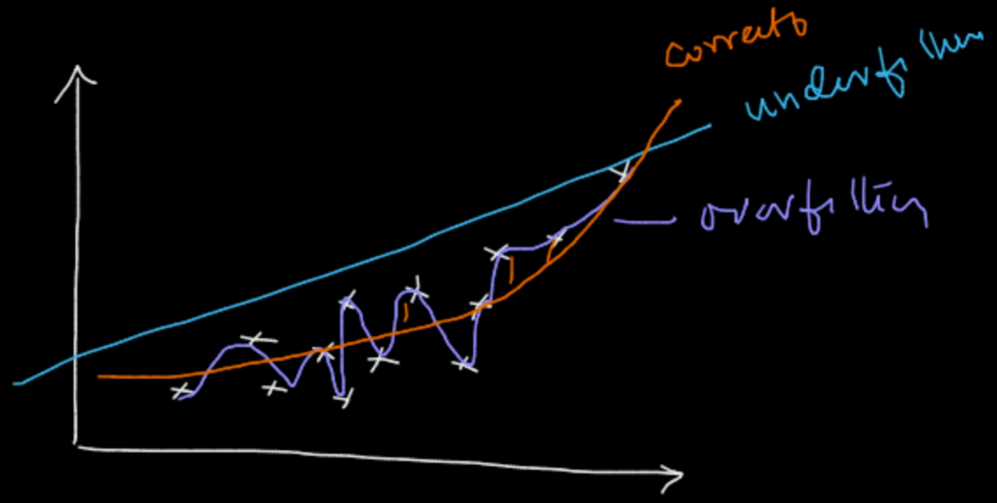
$f_1\ f_2\ f_3 \rightarrow M_1$

$f_2\ f_4\ f_6 \rightarrow M_2$

$f_1\ f_2\ f_9 \rightarrow M_3$

$f_1\ f_2\ f_3\ f_4 - f_{10}$ y

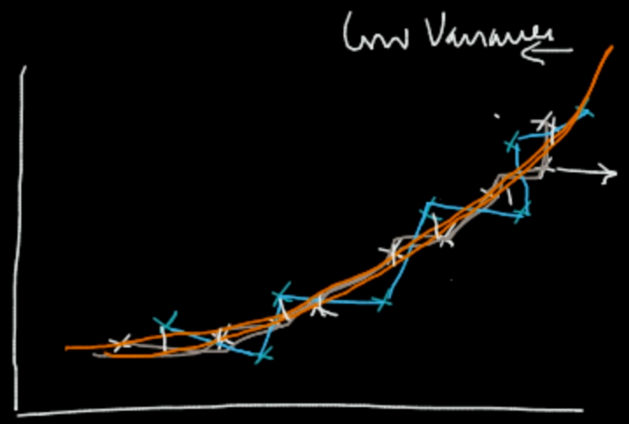
Specialist



↓ Bias ↑ ✓ Variance ↑↓ ✓

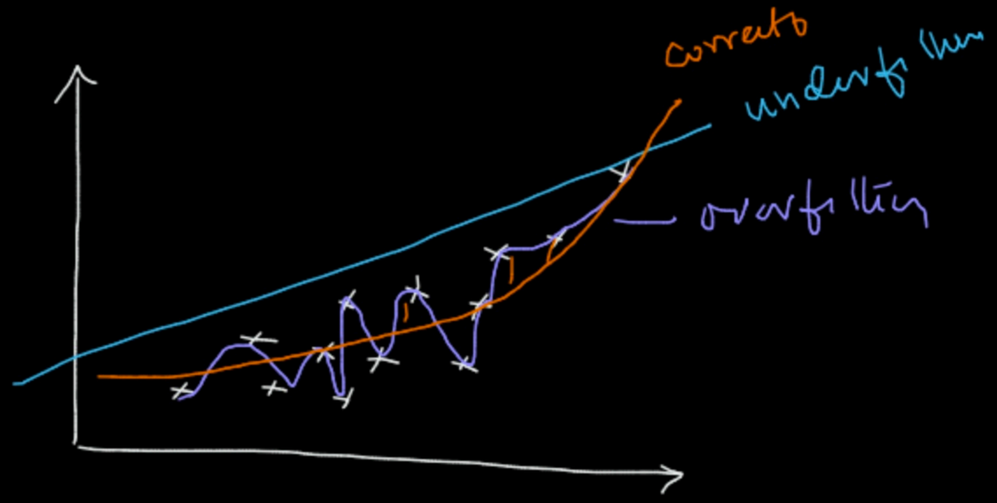
↳

Ensemble →



X, X, y

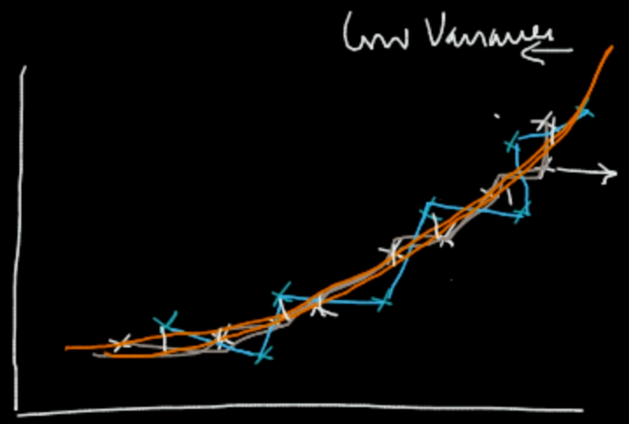
→ Model Varies



↓ Bias ↑ ✓ Variance ↑↓ ✓

↳

Ensemble →



X, X, y

→ Model Varies