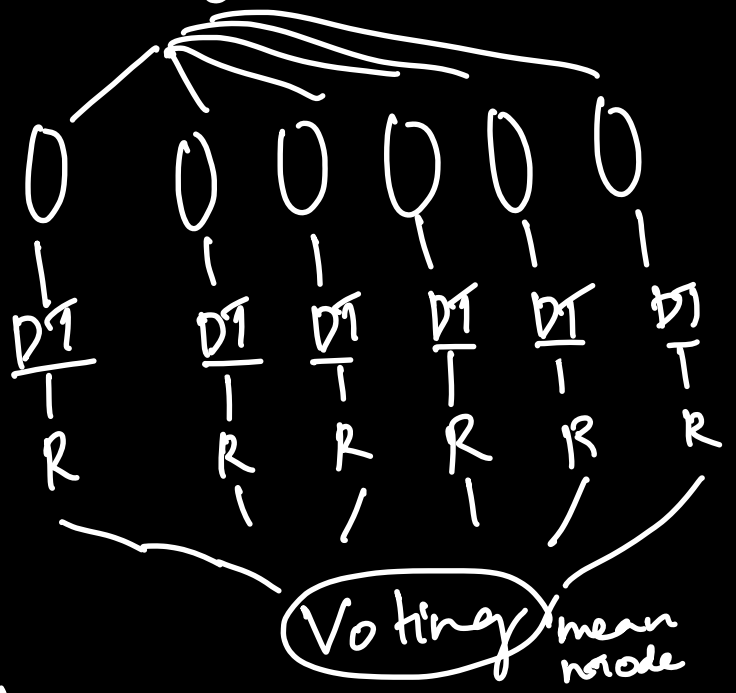
Boosting

Bagging –

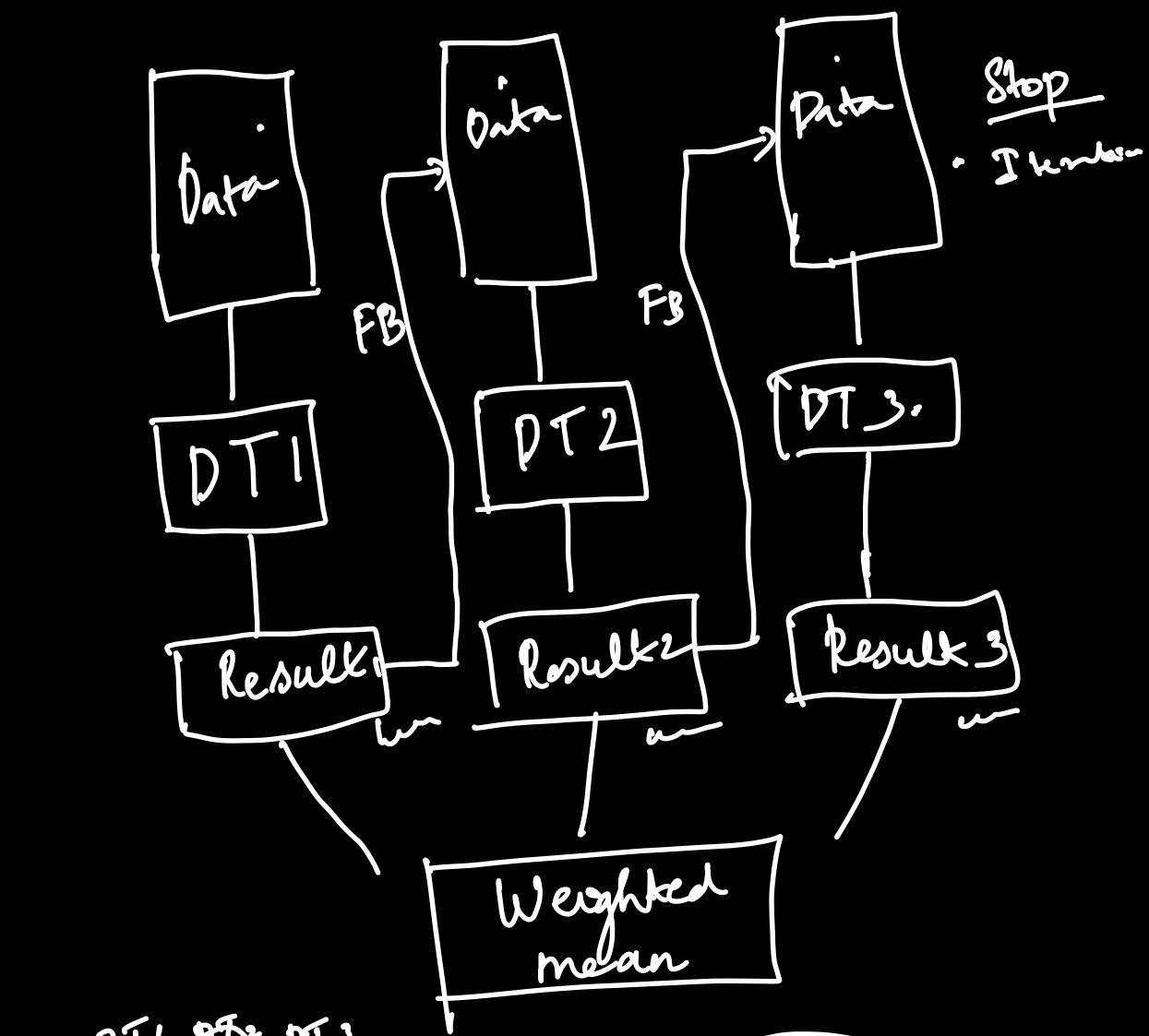
Random Forest

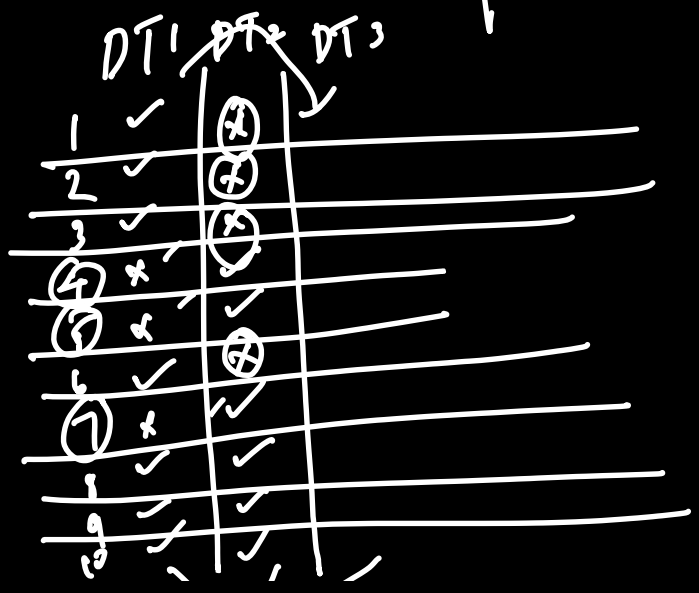


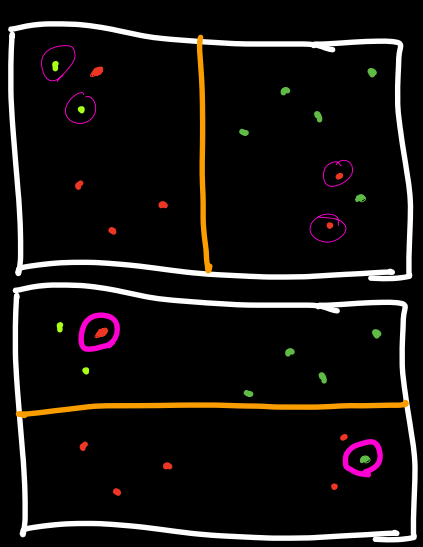
Reduces the Variance

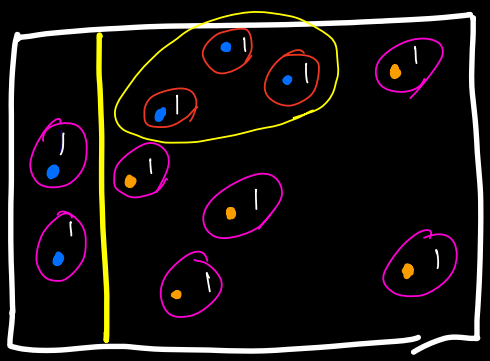
Bias

Boosting


Data
Data
Data
Stop
FB
FB
DT1
DT2
DT3
Result1
Result2
Result3
Weighted mean


DT1
DT2
DT3

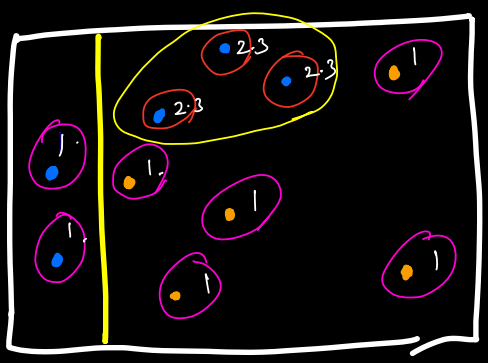




Correct ⇒ 7

Incorrect = 3

$$\frac{7}{3} = 2.33$$

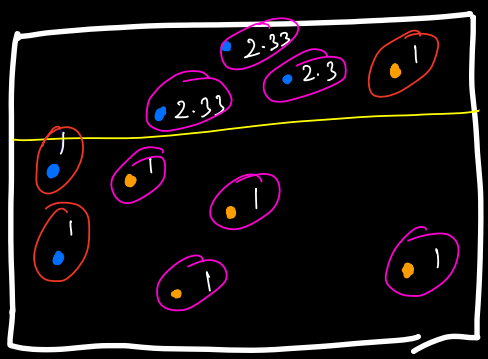


Correct = 7

Incorrect = 2.33 + 2.33 + 2.33

= 7

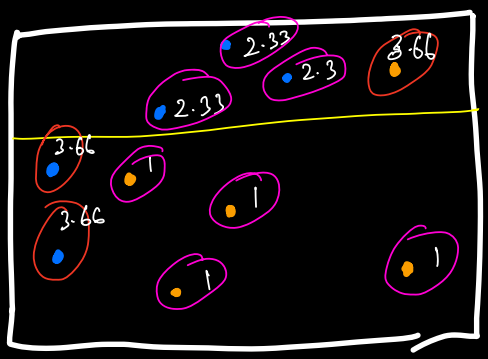
Iteration - 2



Correct = 11

Incorrect = 3

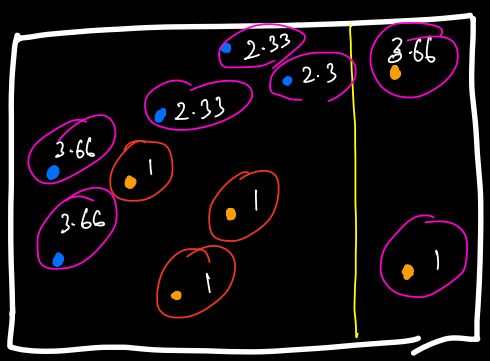
$$\frac{11}{3} = 3.66$$



Correct = 11

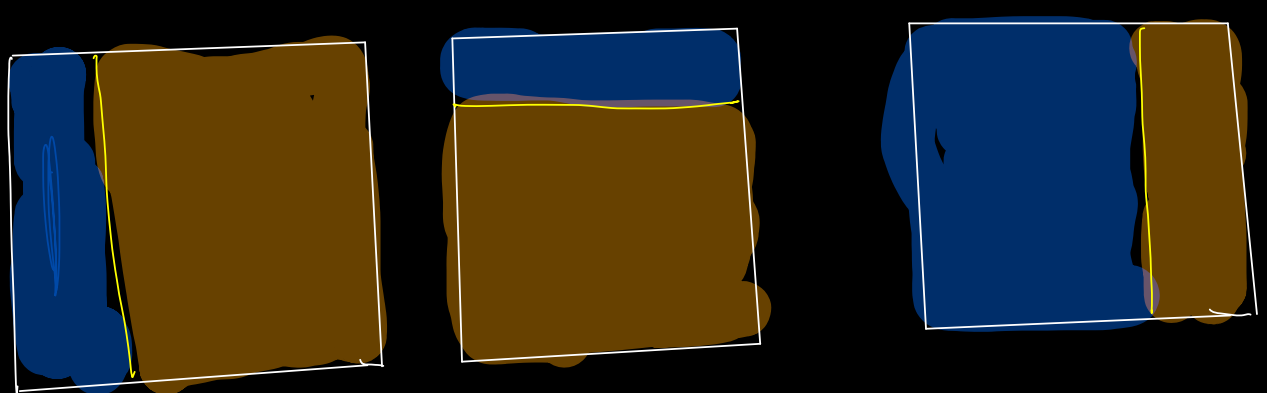
Incorrect = 11

Iteration - 3



Correct = 19

Incorrect =

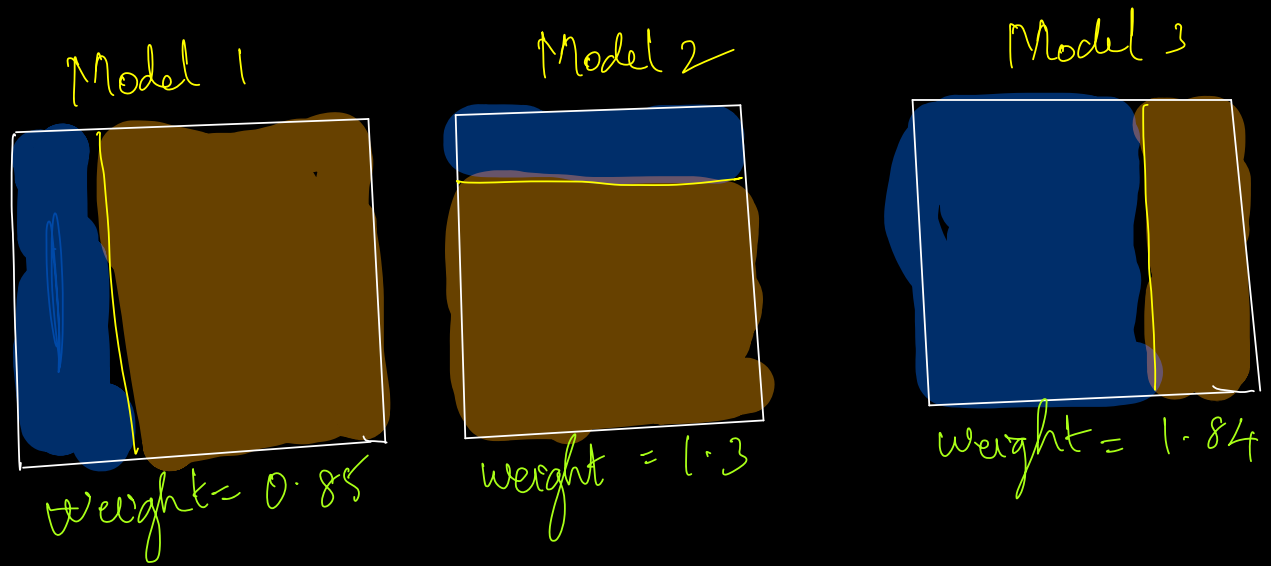


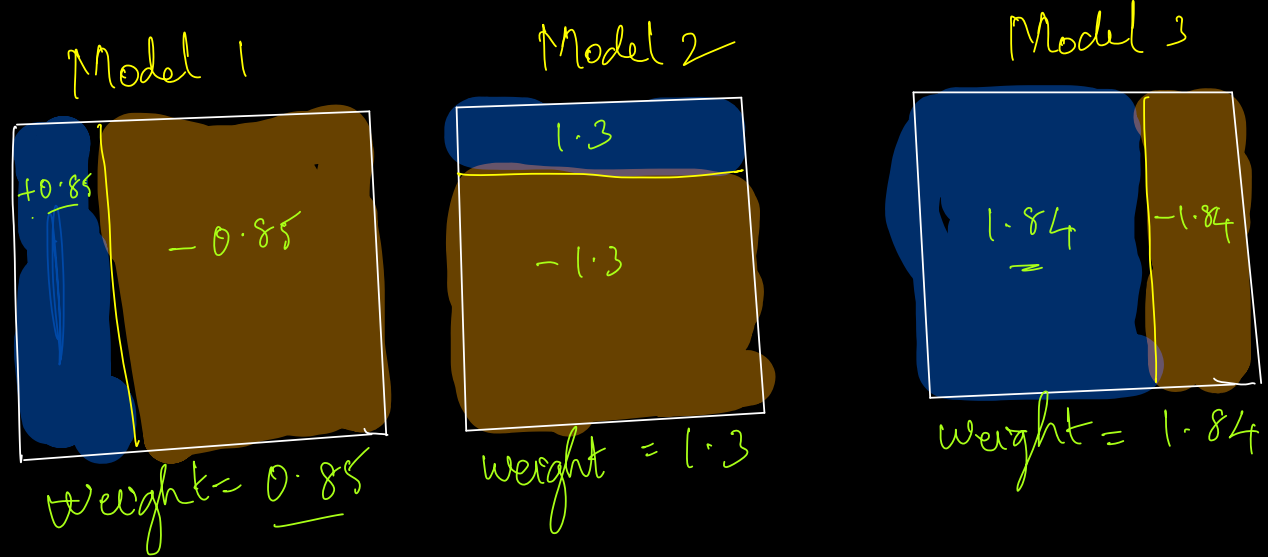
Weightage of a Model = $\ln\left(\frac{\#\text{ Correct}}{\#\text{ Incorrect}}\right)$

Iteration 1 - $\ln\left(\frac{7}{3}\right) = 0.85$

Iteration = $\ln\left(\frac{4}{3}\right) = 1.3$

Iteration = $\ln\left(\frac{19}{3}\right) = 1.84$

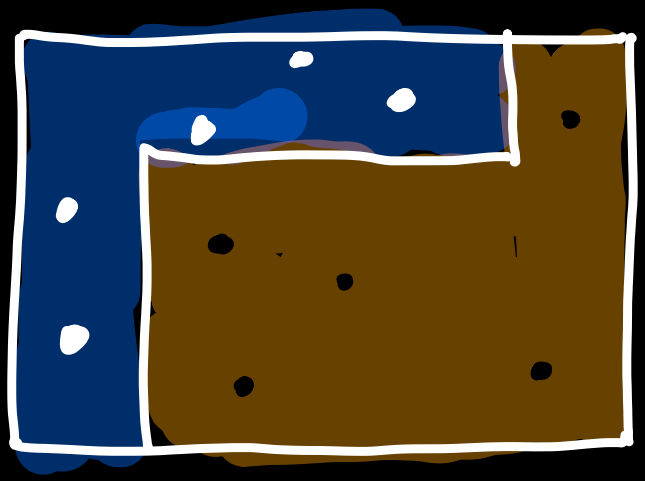




1.84 0.85 1.3	1.84 −0.85 1.3	−1.84 −0.85 1.3
0.85 −1.3 1.84	−0.85 −1.3 1.84	−0.85 −1.3 −1.84

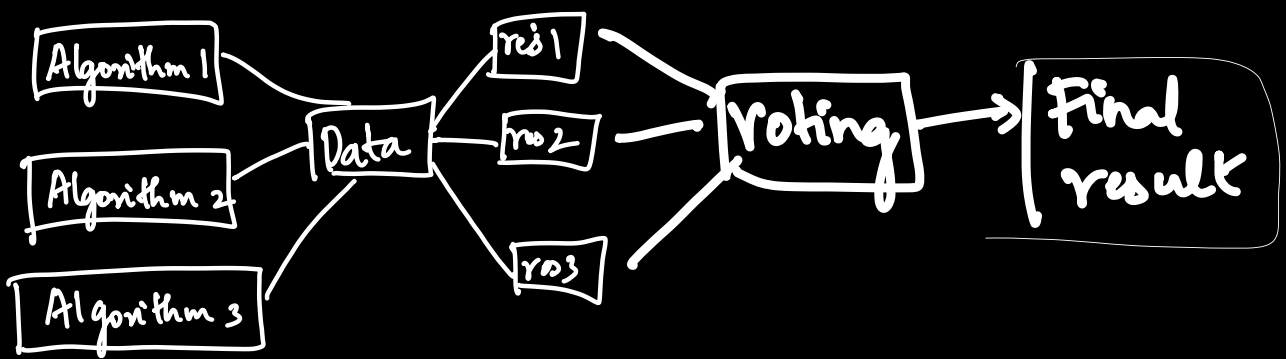
•

3.9	2.29	−1.3
1.39	−0.3	−3.9



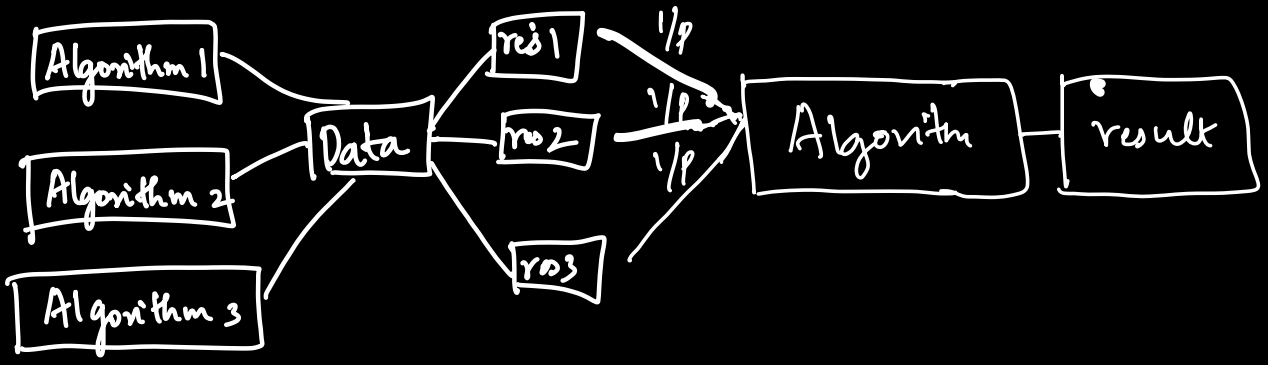
Final Model

Voting Classifier



col1	col2	col3	logistic	KNN	DT	result
2	3	7	0	0	1	0
5	6	7	1	0	1	1
8	9	2	1	1	1	1

Stacking



Col1	Col2	Col3
2	3	2
5	6	7
8	9	2
1	1	1

i/p1 Random	i/p2 Ada	i/p3 DT	o/p target	Logistic
0	0	1	0	0
1	0	1	1	1
1	1	1	1	1