

	Ensemble techniques				
*	Ensemble - Combining multiple models 4 predict wing				
	all models				
	the state of the s				
	Types of Ensemble techniques				
	> Bagging > Boosting				
-	-> Boosting				
	i) Bagging ii) Boosting				
	* Random forest classifier * Adaboost				
	4 regressor * Gradient boost				
	* Xg boost				
	Bogging Technique Bose Learners				
	- JJ - J - Bost -				
	d'∠D 1' Nodel → Decision → D.				
	d'ZD d' tree				
, , , , , ,	Model 2 -> log-reg -> 1 Voting				
0	Dataset				
D=1000	Model 3 - Maige -> 1				
7.1-	Model3 - Naive -> 1 Bayes				
	Model 4 -> svc -> 0				
	dn 1000 +				
	Training 1 moder 1				
	data				
	[Bootstrap Aggregration				
	4 Januare dans				
	Dividing Sample most frequappropriate				
	hassification				
	6 Coustom bagging or custom ensemble technique				
40	case of regression we take average of all outputs				



Rondom forest Classifier & Regressor

Similar to bagging technique lout all the base learners are decision trees

		0				
	Base Cearners					
4.8		1 1 1 1 1 1 1 1 1	Decision	, 0		
	0 0 0	Comp Somp of	Tree-1	Majority voting		
	fi f2 fn	Sampsamp		Classifier		
		Roubeadam	DT-2			
Y	Train	RS+PS		0		
d	data	do .				
	,	RS + PS	DT-3	50		
5 10	Test	and the	m. 1	Incore of		
1		RS+ P	en hadd	regression average		
			DT-n	is computed		
	ege he six	yen un si di	bablour	ad not employed new ten be-		
	in the cost motivate upon traders mad to to					
¥ ()	Row Sampeling -> Selecting sample of records					
	Feature s	sampeling -> ?	Selecting	n features (where n <m)< th=""></m)<>		

- Note
- Classification Majority voting dassifier
- * Regression Average of of models



Why should we use Random forest instead of Decision free?

Decision free

Whenever we split the decision free

fill left no leaf node - overfitting occur

Overfitting

Training Accuracy 11 low Bias

Test Accuracy fix High

Variance

leaf node

Again to eliminate overfitting we should

perform prepruning post pruning

These problems can be avoided in by using Random forest as we have trained many decision trees with sample features thus increases test data accuracy

Out of Bag Douta

Those rows which are missed during row sampeling of rondom forest

Parameter - oob-score = Trup

Owd bog data = validation data = validation accurrecy

ookscore