**Bagging and Boosting**

*Abhishek Mehra*

*Mohit Galvankar*

Boosting

To implement boosting with classifier as decision trees, we have majorly modified the entropy function as a function of the weights of each training sample rather than just merely the probability.

Thus for each node, we now calculate the entropy as,

Similarly we calculate and then calculate the entropy as below:

-( x log() –

After we have build a tree with the current weights, we calculate the error and update our weights, assigning higher weights to misclassified samples and lower weights to correctly classified samples.

We then build another classifier with the new weight set and keep repeating the process till we have build the number of classifier required.

For classification of test sample, we take into consideration the sign of the results of the weighted classification by each classifier.

* Initial weights have been set to 1/n where n is the total number of samples.
* Labels have been changed from (0,1) to (-1.1) to be able to take the sign in the end into consideration

RESULTS –

* For depth 1 and 10 classifiers



* For depth 1 and 5 classifiers



* For depth 2 and 10 classifiers 
* For depth 2 and 5 classifiers
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