

Ensemble Technique:

It is the technique of combining multiple models to produce more accuracy of predictive model than any individual model alone.

Use of Ensemble Techniques:

To reduce Bias –

To reduce Variance-

[Low Bias- Performance on train data, High variance-fail to perform well on test data, under fitting- model fails to perform bad on test and train data that is high bias and high variance]

So, we need generalized model and need the generalized technique.

To improve prediction / performance of model

Ensemble Technique

1. **Bagging (known as Bootstrap Aggregating)** - Example of Random forest classifier
Builds multiple models independently using random subsets of data (with replacement) and combines predictions.
2. **Boosting – Ada Boost, Gradient Boosting, XG Boost**
Builds models sequentially where each new model focuses on correcting the errors of the previous one.