



**ENSEMBLES**



Supervised Learning:

# Ensembles

## What it is:



- ❖ “Ensemble methods use multiple learning algorithms to obtain better predictive performance that could be obtained from any of the constituent learning algorithms.” (Wikipedia, 2015)
- ❖ Random Forests and Gradient Boosting Machines (GBM) are both ensembles of decision trees.
- ❖ Stacking, or Super Learning, is technique for combining various learners into a single, powerful learner using a second-level metalearning algorithm.

## What it's not:



Ensembles typically achieve superior model performance over singular methods. However, this comes at a price — computation time.

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