

## CHEAT SHEET

# Gradient Boosted Decision Trees (GBDT)

Algorithm Name	GBDT (an acronym for gradient boosted decision trees)
Description	GBDT is an iterative model that progressively refines its predictions by combining multiple decision trees. The first “tree” simply predicts the average of the output variable, then each successive tree is trained on the residuals from the predictions at the previous level.
Applicability	Classification and regression problems
Assumptions	Independent and identically distributed data
Underlying Mathematical Principles	Adds trees to the ensemble, reduces the residual error in each iteration until there is none
Hyperparameters	Number of trees to add, depth of the trees, and learning rate
Setting	Note that while <b>regression</b> trees return continuous values, we can still use them to solve classification problems with discrete labels. For example, we can return the sign of the output of the tree.
Loss Function	For regression, squared loss; for classification, log loss

