# Further Learning and Resources

## Ensemble methods in the scikit-learn library:

* [**BaggingClassifier**](http://scikit-learn.org/stable/modules/generated/sklearn.ensemble.BaggingClassifier.html#sklearn.ensemble.BaggingClassifier)
  + Discusses how the Bagging classifier is used to fit base classifiers each on random subsets of the original dataset and then aggregate their individual predictions (either by voting or by averaging) to form a final prediction.
* **[RandomForestClassifier](http://scikit-learn.org/stable/modules/generated/sklearn.ensemble.RandomForestClassifier.html#sklearn.ensemble.RandomForestClassifier)**
  + Discusses how the RandomForest classifier fits a number of decision tree classifiers on various sub-samples of the dataset and uses averaging to improve the predictive accuracy and control over-fitting.
* **[AdaBoostClassifier](http://scikit-learn.org/stable/modules/generated/sklearn.ensemble.AdaBoostClassifier.html#sklearn.ensemble.AdaBoostClassifier)**
  + Discusses how the AdaBoost classifier fits on the original dataset and then fits additional copies of the classifier on the same dataset but where the weights of incorrectly classified instances are adjusted such that subsequent classifiers focus more on difficult cases.

Another really useful guide for ensemble methods, which can also all be extended to regression problems, can be found **[in the documentation here](http://scikit-learn.org/stable/modules/ensemble.html)**

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## Boosting

* [**An explanation about why boosting is so important**](http://blog.kaggle.com/2017/01/23/a-kaggle-master-explains-gradient-boosting/) - A great article on boosting by a Kaggle master, Ben Gorman.
* [**A useful Quora post**](https://www.quora.com/What-is-an-intuitive-explanation-of-Gradient-Boosting) - A number of useful explanations about boosting.