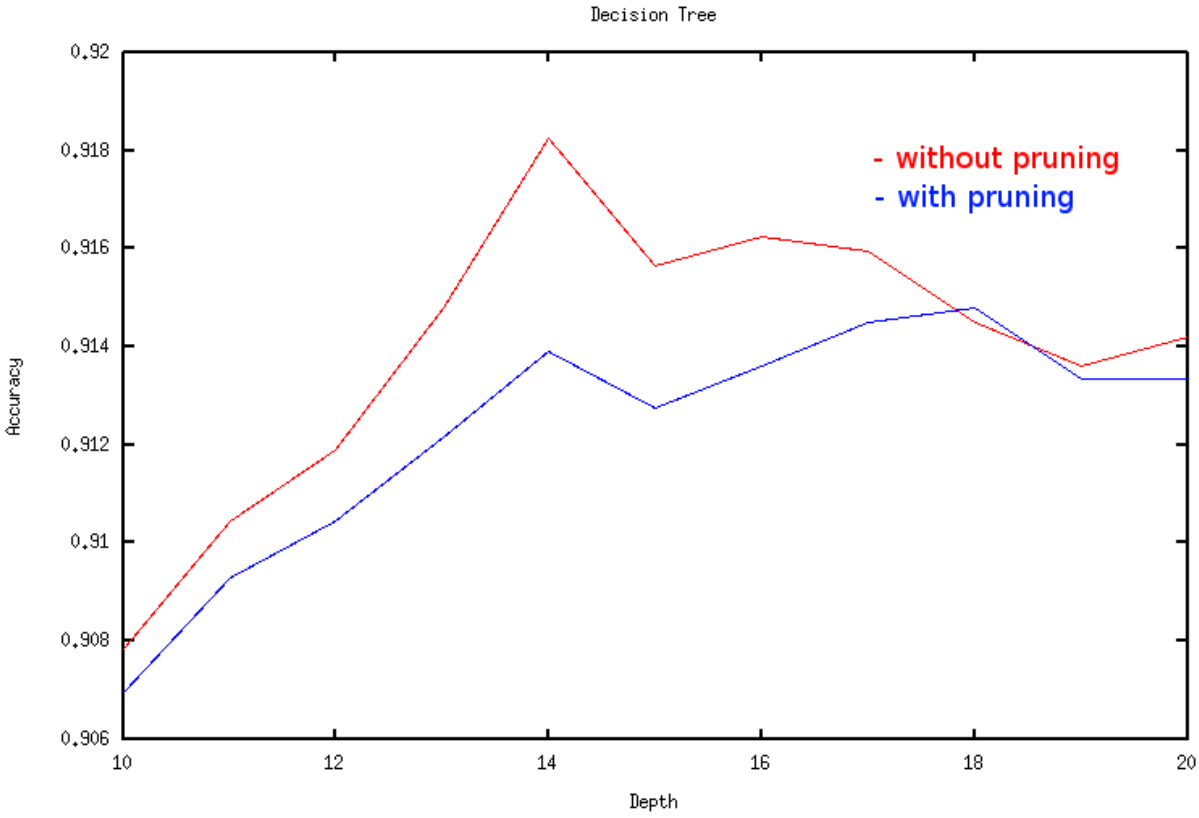
Decision Tree

A regular decision tree with or without pruning based on the input parameters.

Features: Optional Pruning
Parameters Used: depth 11
Performance: 94.6%



Here is a graph with 11 data points. The accuracy increases as we increase the search depth.

Random Forest

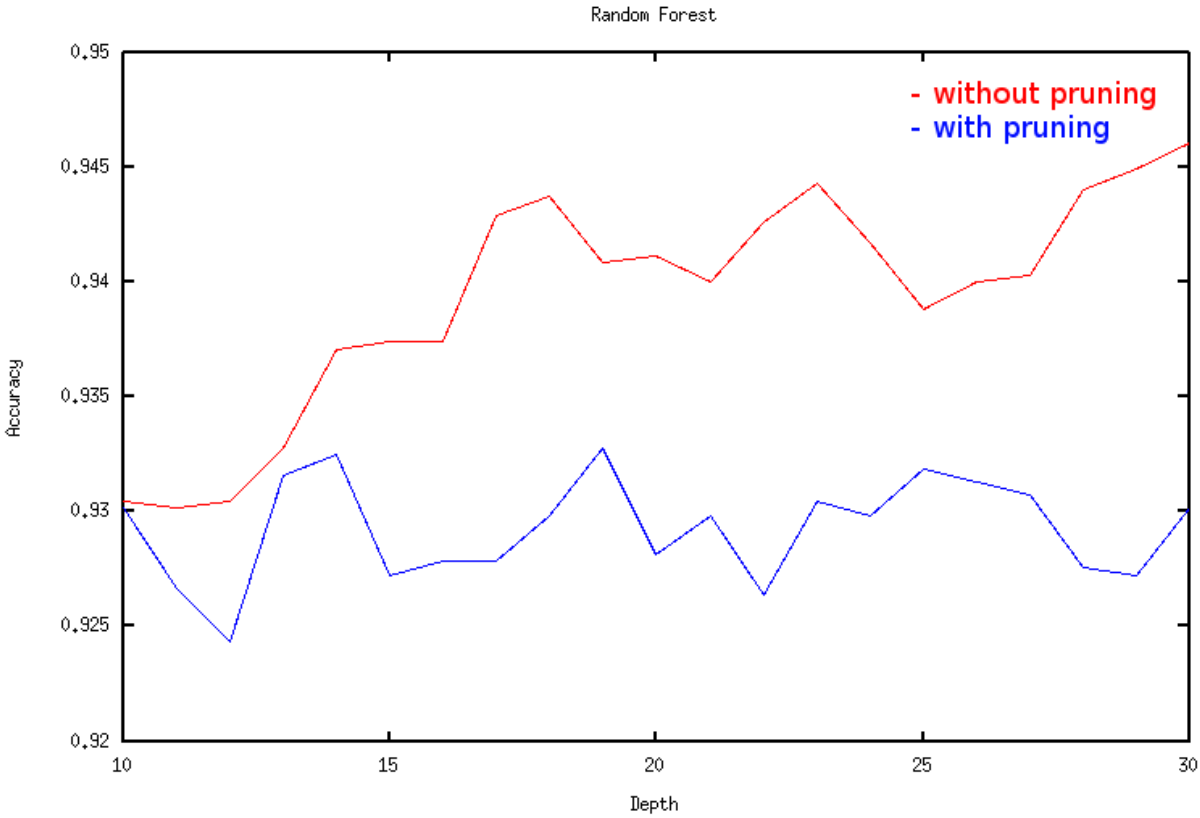
A random forest chooses to split on the best feature from a random subset of features at each depth. It also trains with a random subset of training data for each tree.

Settings: - random (ceiling of 57^0.5) ~ 8 features each round

- random 66.7% of training data for each tree

Parameters Used: depth 27

Performance: 95.1%



Here is a graph with 21 data points. We used 15 random trees. The accuracy increases as we increase the search depth.

AdaBoost

t weak decision trees by calling dTrees and updating the the sample significance using the error rate of the i-1 weak learner to build the ith learner.

Parameters Used: depth 5
Performance: 93.5%

Citations:
Most of the implementation decisions made are based on the papers given in the reading directory of this assignment package.
The extra sources include:
Random Forests Leo Breiman and Adele Cutler
http://www.stat.berkeley.edu/~breiman/RandomForests/cc_manual.htm