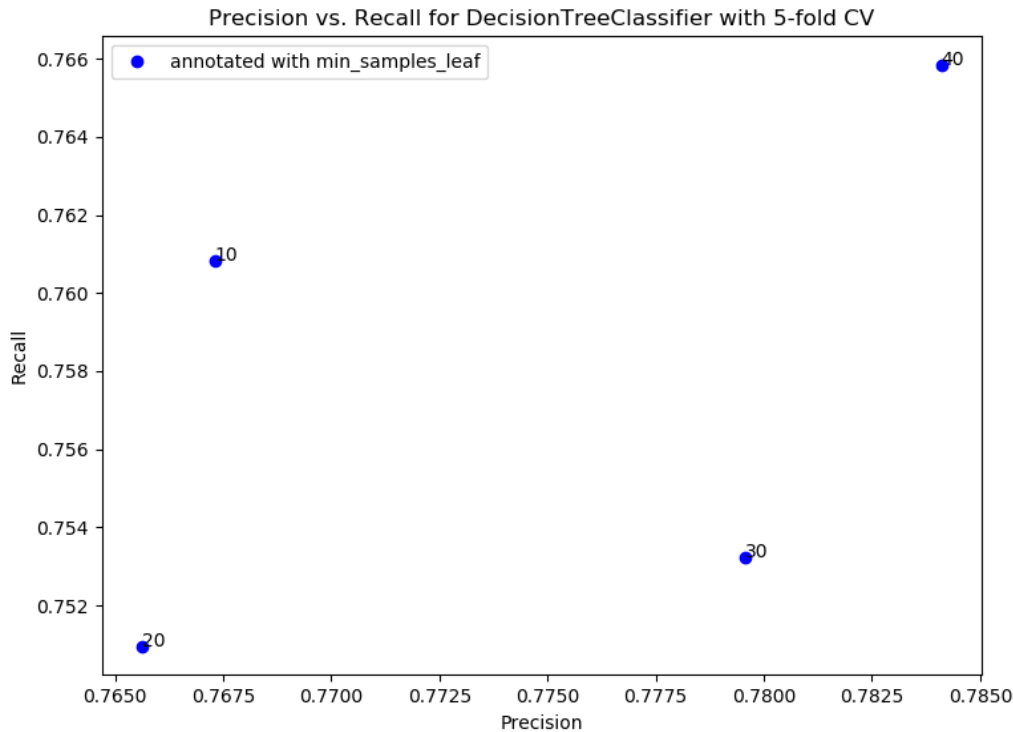Casey Carr
HW1 Comp 7745
2/19/2019

7. (a) From the graph below which shows avg. precision vs avg. recall (for 5-fold cross validation), for varying values of the pruning confidence parameter (min_samples_leaf in sklearn), at some threshold level, say 40, as we increase the minimum number of samples on which we branch, precision and recall are optimized.

(b) The combination of learning rates and hidden layers with the best performance in terms of average F1-score is learning_rate = 0.01 and validation_fraction = 0.1. As we increase the validation_fraction, performance seems to deteriorate.

Average F1-SCORE from combination of learning rates and hidden layers								
			Learning_rate_init					
			1 - Hidden Layer			2 - Hidden Layers		
			0.01	0.1	0.2	0.01	0.1	0.2
Validation		0.1	0.2318	0.15712	0.11586	0.24866	0.13390	0.10079
fraction		0.3	0.2015	0.15040	0.10343	0.24944	0.14036	0.10133