

Part A

Classifier	Accuracy(in perc)	Time(sec)
Scikit-learn RF	94.42	0.125
Scratch RF	88.41	145.24

I got the Accuracy of RF, around 85-89 %, with 10 trees in forest which takes around 100 sec in scratch RF while around 0.125 sec in scikit-learn. Plotted the graph for different m and its acuracy we got and compare it with scikit-learn.

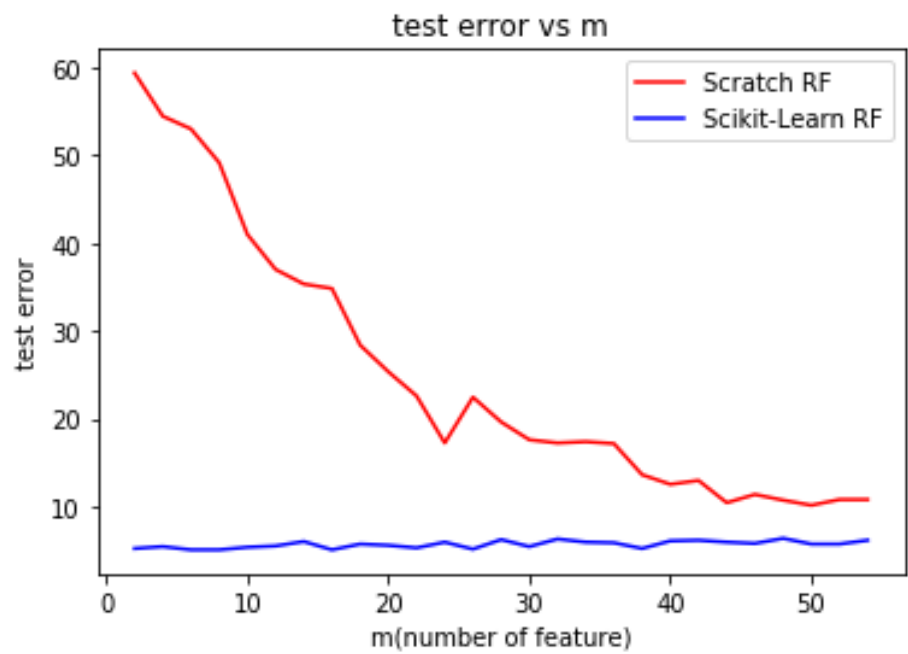


Figure 1: Test Error(%) vs m(number of feature)

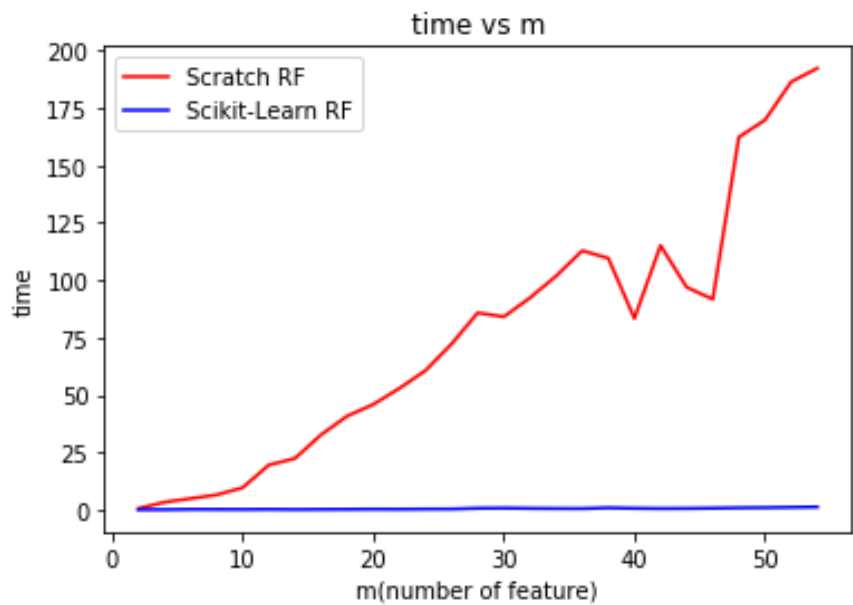


Figure 2: Time(sec) vs m(number of feature)

Part B

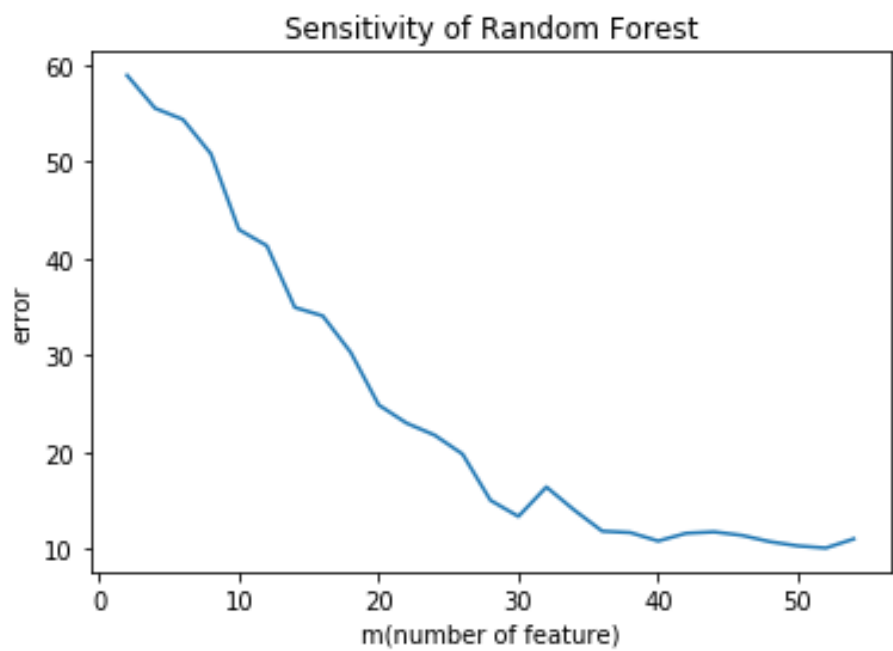


Figure 3: Test Error(%) vs m(number of feature)

This is the sensitivity graph we got on different m vs the test error we got on every forest with 10 tree in each forest.

Part C

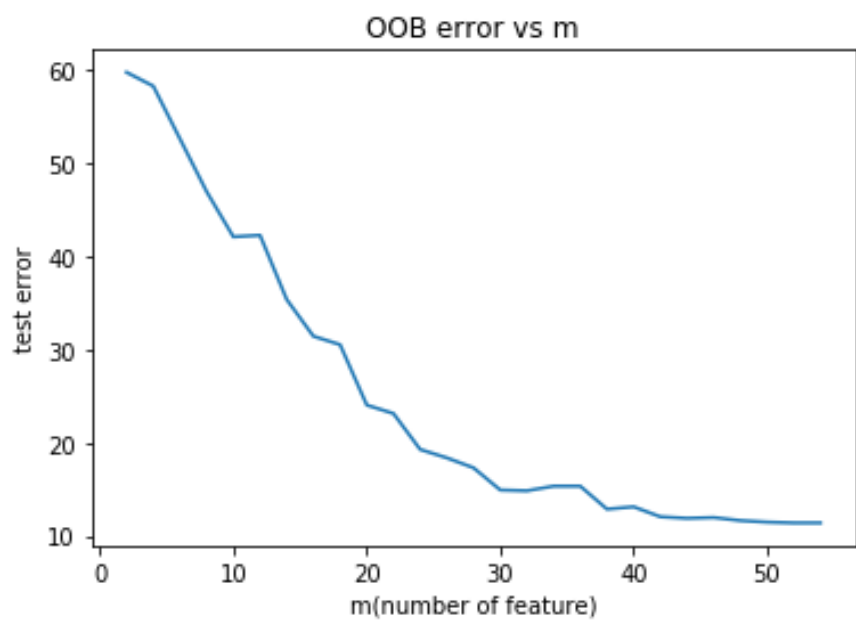


Figure 4: Test Error(%) vs m(number of feature)

We take the 2000 sample from the training data and test it on remaining data present on training data. We plotted the graph on m vs test error.