3b

Using the attached program, we are able to reach the accuracy of 96.04%, with 394(1.21%) false positives, and 892(2.75%) false negatives.

3c

With the new cost sensitive classifier, we are able to reach the accuracy of 96.01%, with 467(1.44%) false positives, and 829(2.55%) false negatives. Intuitively, if , that is, if we penalize false negative more than false positive, we should see less false negative errors being made. On the other hand, if this ratio is smaller than 1, we penalize false positive more, then we should see less false positive errors being made. If the ratio is 1, we are effectively minimizing the overall error rate.