Assignment 11
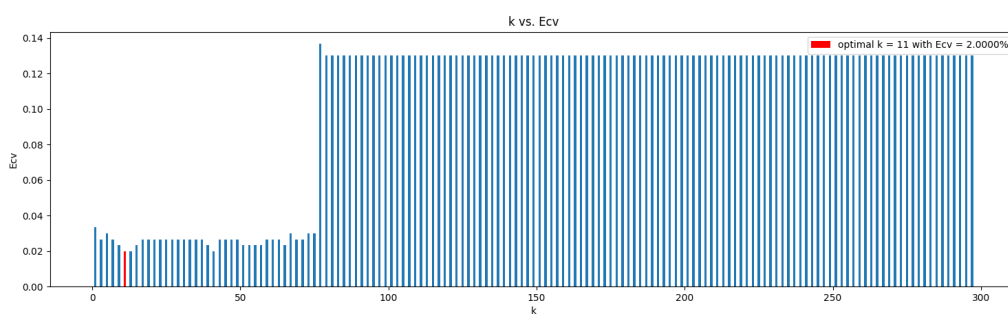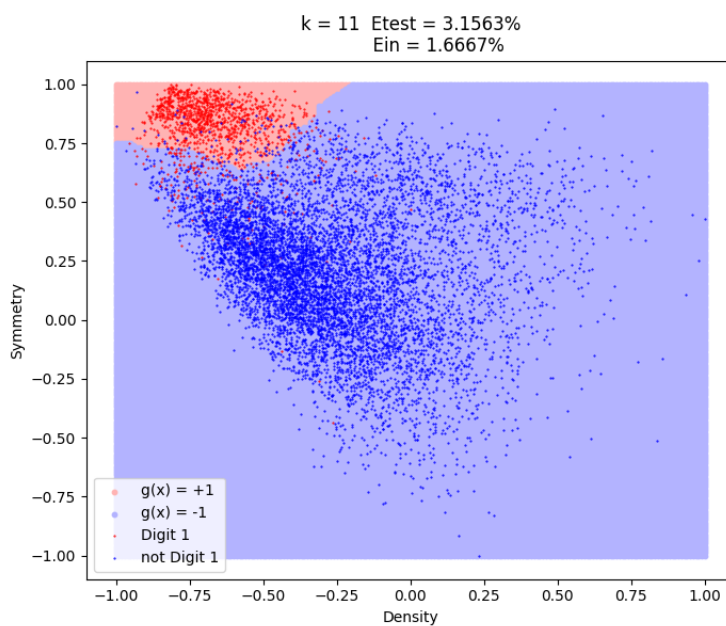
Ruochen Kong, 661947549, CSCI 4100

1. (a) Choose $k = 11$:
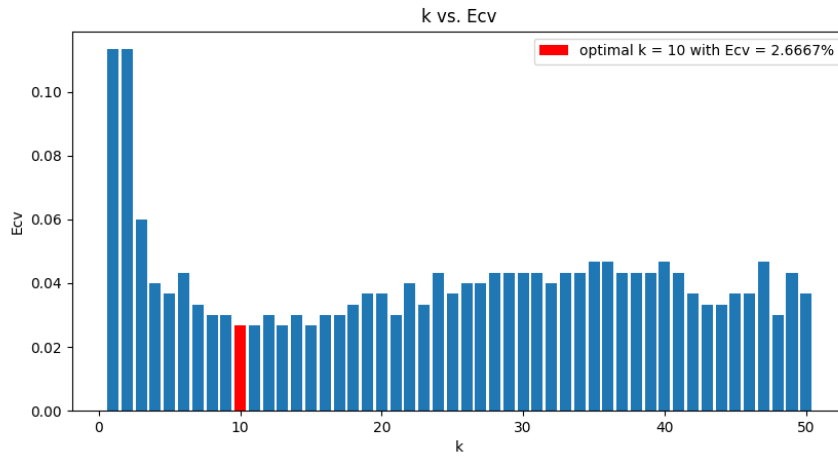

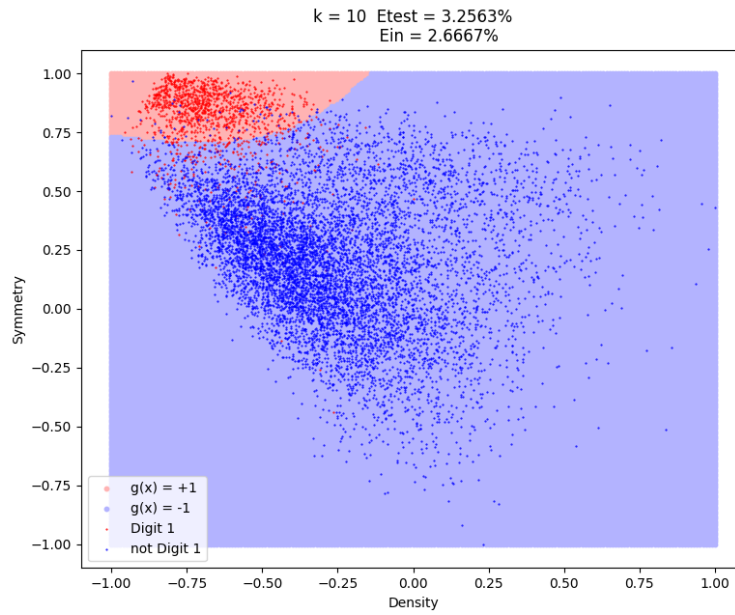(b) $E_{cv} = 2.00\%$ and $E_{in} = 1.67\%$

(c) $E_{test} = 3.16\%$ and the result is shown in the previous problem.

2. (a) Choose $k = 10$:

k vs. Ecv

(b) $E_{cv} = 2.67\%$ and $E_{in} = 2.67\%$

k = 10 Etest = 3.2563%
Ein = 2.6667%

(c) $E_{test} = 3.26\%$ and the result is shown in the previous problem.

3. From Assignment 9, for linear model $E_{test} = 3.5377\%$.

Comparing with $E_{test} = 3.1563\%$ for k-NN and $E_{test} = 3.2563\%$ for RBF-network, I find that they are really similar. But the decision boundary of linear model is quite different with the others. For k-NN we only consider several near points, and for RBF gives different weight to each point, so when the k chosen for RBF is relatively much smaller than N, it should be quite similar to k-NN. For linear model, we don't consider the distance, probably because of this, more noises are taking in account and then the result is formed with a little bit lower accuracy.