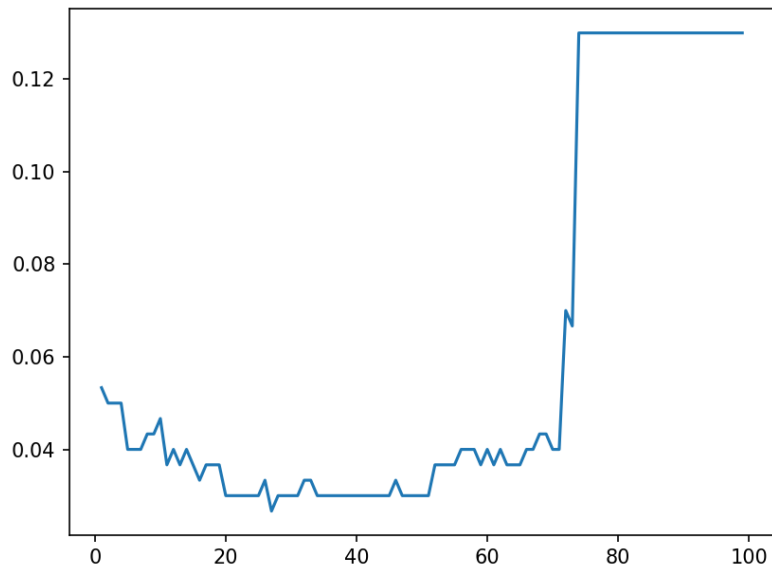
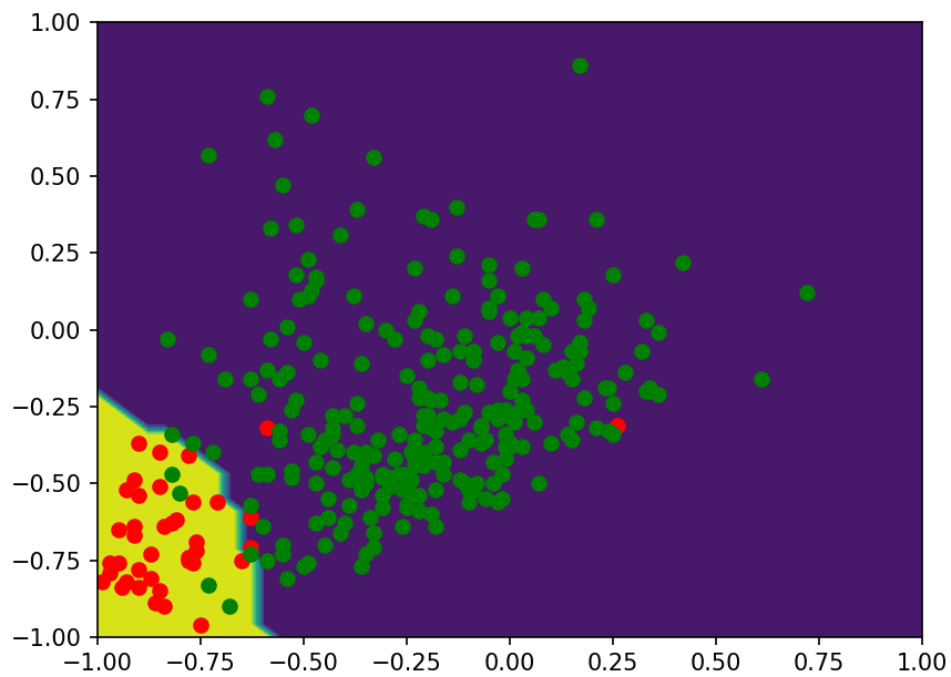


1.a:



1.b:



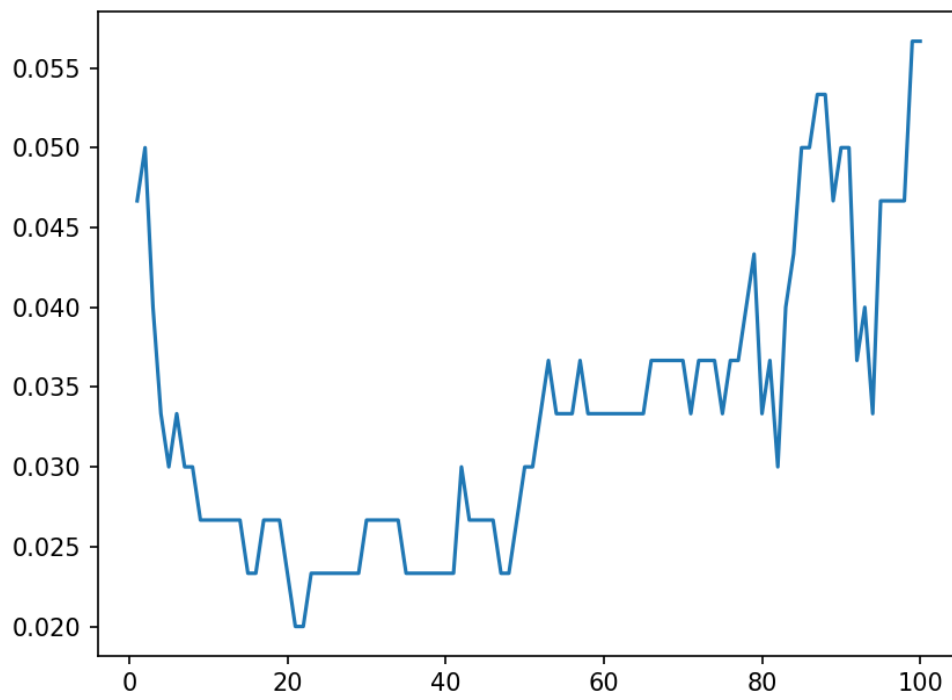
In sample error: 0.0266666666666667

Cross validation error: 0.0266666666666667 at  $k = 7$

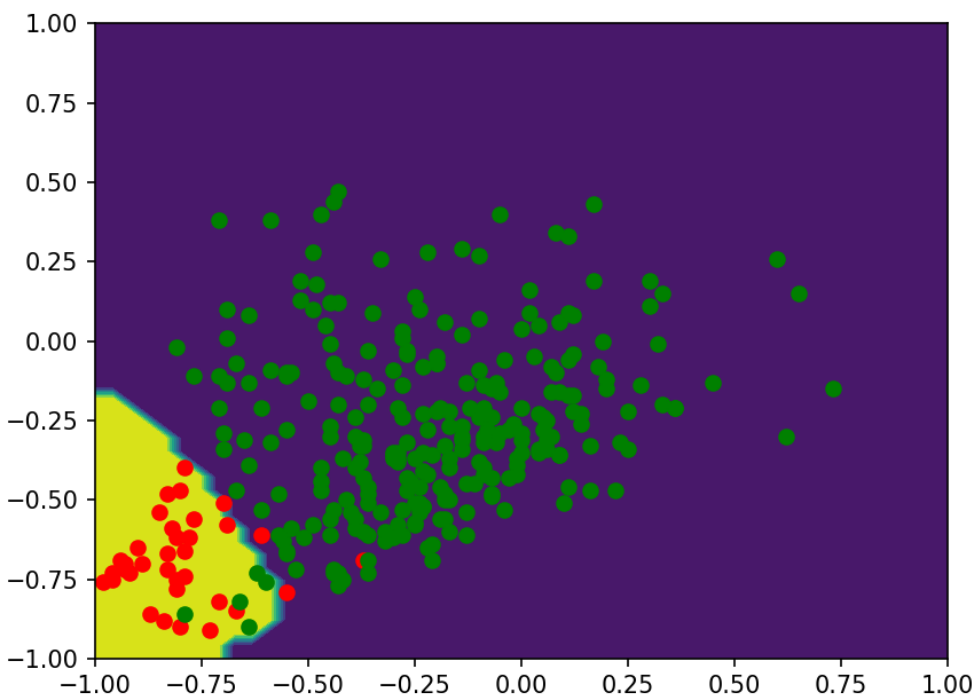
1.c:

Etest = 0.030228939764392088

2.a:



2.b



Ecv = 0.02 at k = 21

Ein = 0.03

2.c:

Etest = 0.02967326072460547

3:

From HW9 the minEtest for Linear model with 8 order polynomial transform is:

0.0316737052678373

Etest for KNN is: 0.030228939764392088

Etest for RBF network is: 0.02967326072460547

We can see that the Etest between 3 models is very similar, however the RBF network has a slightly smaller Etest than the other 2 models. I think this is because the 8th order linear model and KNN have a more complex hypothesis than the RBF network, so they are affected by noise more than RBF network.