Homework two: MIN_MAX MODULAR

I use python to realize min_max network,and the result is showed in the result.txt,please use notepad to open this file .Or you can just run the Min_Max.py to see the result,but it may need some time to run,because each submodel is not paralelly computing. Acorrding to the result it shows ,comparing to the single MLQP,the min_max modular needs less time to build its model,and will get almost the same test result as single MLQP.here are the parameters I choose to init every submodel :

Error function :Mean Aquare Error

Learning rate: 0.111

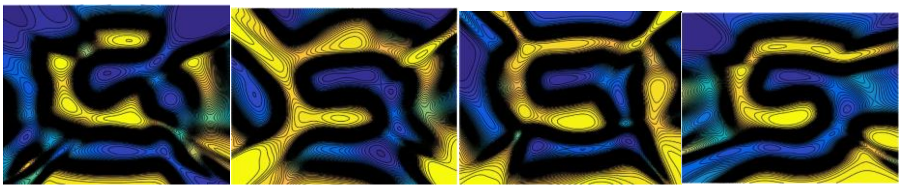
Hidden layer unit number : 10

Intial weights to U,V,B: rand(-1,1)

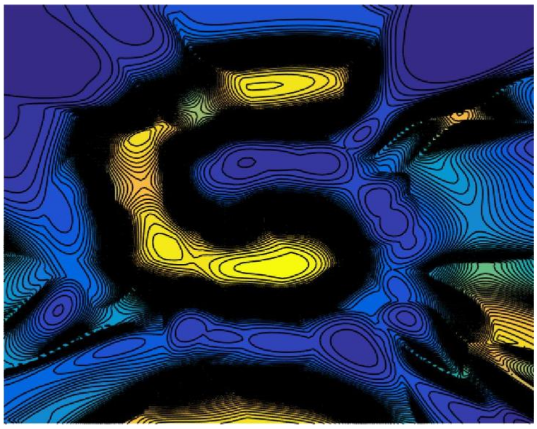
Stopping criteria: iterate beyong 5000 times or the mean error is less than 10^-4

Trainging samples:randomly choose 3/4 from the whole training set and the the number of class 1 and class 0 is the same for each submodel

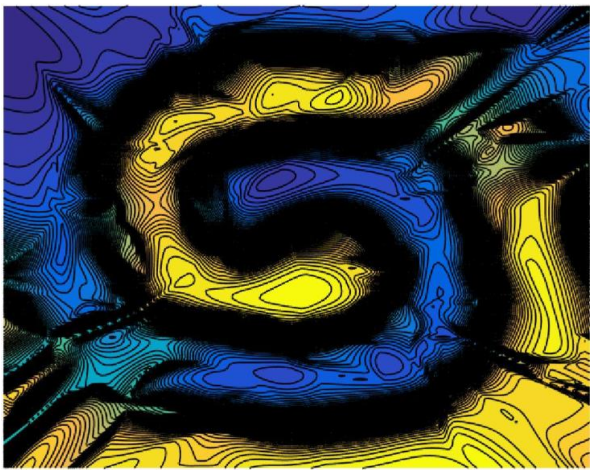
The following is the decision boundary of each submodel,here I just show you one group of them:



And the following is the decision boundary after the min operation of every four submodels,Here I just show you one of them



And the final decision boundry after the max operation is



In a word ,the min_max network just take useof each submodel to get a better result,because every submodel is independent ,so it can be computed parallelly,So it needs less time to train the model but also gets the same good performance as the single MLQP