CSCI964 Computational Intelligence: Lab #3

Mei Wangzhihui 2019124044

Task 1

```
import libsvm.commonutil as commonutil
import libsvm.svmutil as sut

y, x = sut.svm_read_problem("../data/iris_libsvm_random.txt")
model = sut.svm_train(y, x, '-t 0')

p_label, p_acc, p_val = sut.svm_predict(y, x, model)
```

linear kernel
iter = 32 nu = 0.204900 obj = -15.759854, rho = -6.783209 nSV = 23, nBSV = 19
iter = 5 nu = 0.014961 obj = -0.748057, rho = 1.447464 nSV = 3, nBSV = 0
iter = 12 nu = 0.004074 obj = -0.203684, rho = 1.507573 nSV = 3, nBSV = 0 Total nSV = 27 Accuracy = 99.3333 (149/150) (classification)
polynomial kernel iter = 29574 nu = 0.062675 obj = -5.885061, rho = -7.005220 nSV = 11, nBSV = 4
iter = 6 nu = 0.000188 obj = -0.009399, rho = 1.134350 nSV = 3, nBSV = 0
iter = 9 nu = 0.000036 obj = -0.001817, rho = 1.184761 nSV = 4, nBSV = 0 Total nSV = 16 Accuracy = 98% (147/150) (classification)
radial basis function iter = 47 nu = 0.293557 obj = -21.377492, rho = 0.144354 nSV = 33, nBSV = 26
iter = 49 nu = 0.046504 obj = -2.403415, rho = -0.040019 nSV = 11, nBSV = 2
iter = 22 nu = 0.038910 obj = -1.945147, rho = -0.167726 nSV = 10, nBSV = 0 Total nSV = 45 Accuracy = 98.6667% (148/150) (classification)
sigmoid: tanh iter = 50 nu = 1.000000 obj = -100.000000, rho = 0.000000 nSV = 100, nBSV = 100
iter = 50 nu = 1.000000 obj = -100.000043, rho = 0.000001 nSV = 100, nBSV = 100
iter = 50 nu = 1.000000 obj = -100.000047, rho = 0.000000 nSV = 100, nBSV = 100 Total nSV = 150 Accuracy = 4% (6/150) (classification)