Programming report 1

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parameter settings

input data is X(n\*m), n is the number of the examples, m is the number of the features

1. logistic regression model:

w is the weight.((m+1)\*1)

* 1. converge limit is
  2. update step = 0.1
  3. decrease rate of steps = 0.9

1. single-hidden-layer neural network model:

w is the weight of first layer, ((m+1)\*h) , h is the number of hidden layer units

v is the weight of the second layer, ((h+1)\*1)

* 1. converge limit is both
  2. update step = 0.1
  3. decrease rate of steps = 0.9

1. linear-SVM model

choose default parameters.

1. rfb-SVM model

for Kernel options -g - parameter gamma in rbf kernel exp(-gamma ||a-b||^2)

select gamma = 0.5 to get the best answer.

experiment results.

1. classification accuracy
2. CPU time

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CPU time(s) | Logistic regression | Neural Network | SVM-linear | SVM-rbf |
| australian | 0.033341 | 82.362088 | 0 | 0 |
| breast-cancer | 0.014235 | 8.798413 | 0 | 0 |
| diabetes | 0.026939 | 15.089667 | 0 | 0.01 |
| german-numer | 0.050494 | 76.975098 | 0 | 0.02 |
| heart | 0.001541 | 16.773531 | 0 | 0 |