The following codes devote to solving multinomial regression with overlapping group lasso penalty (MOGL) using the available package msgl and they can be conducted on R. The red font is a description of the codes behind it.

## Download R packages msgl that we need

library(msgl)

## Import data

x<-read.table("golubxin.txt",header=F)

x<-as.matrix(x)

y=read.csv("leibiaoqian.csv",header=F)

y<-t(y)

y<-as.factor(y)

tezheng<-read.table("tezhengqunweizhi.txt",header=F)

tezheng<-t(tezheng)

tezheng<-as.matrix(tezheng)

##Solve MOGL

cl <- makeCluster(2)

registerDoParallel(cl)

fit.cv <- msgl::cv(xtrain, classes=ytrain,grouping=tezheng, fold =5,alpha=0.5, lambda = 0.05, use\_parallel = TRUE)

stopCluster(cl)

fit.cv

Err(fit.cv,type="rate")

fit<-msgl::fit(xtrain,classes=ytrain,grouping=tezheng,alpha = 1,lambda = 0.05)

fit

features(fit)[[best\_model(fit.cv)]]

parameters(fit)[[best\_model(fit.cv)]]

coef(fit, best\_model(fit.cv))

## Make prediction

res <- predict(fit,xtest)

yyuce<-res$classes[,best\_model(fit.cv)]