Compile:

javac -classpath commons-cli-1.2.jar:commons-math3-3.2.jar cs362/\*.java

train:

java cs362.Learn -mode train -algorithm kernel\_logistic\_regression -model\_file circle.kernel\_logistic\_regression.model -data circle.train -task classification

java cs362.Learn -mode train -algorithm kernel\_logistic\_regression -model\_file circle.kernel\_logistic\_regression.model -data circle.train -task classification -kernel polynomial\_kernel -polynomial\_kernel\_exponent 2 -gradient\_ascent\_training\_iterations 20

java cs362.Learn -mode train -algorithm kernel\_logistic\_regression -model\_file circle.kernel\_logistic\_regression.model -data circle.train -task classification -kernel gaussian\_kernel -gaussian\_kernel\_sigma 1 -gradient\_ascent\_training\_iterations 20

test:

java cs362.Learn -mode test -model\_file circle.kernel\_logistic\_regression.model -data circle.dev \

-predictions\_file circle.dev.kernel\_logistic\_regression.predictions -task classification

The accuracy of the train set for linear\_kernel\_logistic\_regression algorithm is 0.488

jianili all $

jianili all $ java cs362.Learn -mode test -model\_file circle.kernel\_logistic\_regression.model -data circle.dev \

> -predictions\_file circle.dev.kernel\_logistic\_regression.predictions -task classification

The accuracy of the test set is 0.55

jianili all $

jianili all $ java cs362.Learn -mode train -algorithm kernel\_logistic\_regression -model\_file circle.kernel\_logistic\_regression.model -data circle.train -task classification -kernel polynomial\_kernel

The accuracy of the train set for polynomial\_kernel\_logistic\_regression algorithm is 0.506

jianili all $ java cs362.Learn -mode test -model\_file circle.kernel\_logistic\_regression.model -data circle.dev -predictions\_file circle.dev.kernel\_logistic\_regression.predictions -task classification

The accuracy of the test set is 0.57

jianili all $ java cs362.Learn -mode train -algorithm kernel\_logistic\_regression -model\_file circle.kernel\_logistic\_regression.model -data circle.train -task classification -kernel gaussian\_kernel

The accuracy of the train set for gaussian\_kernel\_logistic\_regression algorithm is 0.751

jianili all $ java cs362.Learn -mode test -model\_file circle.kernel\_logistic\_regression.model -data circle.dev -predictions\_file circle.dev.kernel\_logistic\_regression.predictions -task classification

The accuracy of the test set is 0.52