Write a Python program for the logistic discrimination gradient  
descent algorithm. The input and output should be the same as for Naive-Bayes. Once again, your program will be executed by the grader as:

python <your py program> <data file path> <training label file path>.

If you hard code the file names in your program, you will get a 0.

Test your program with the input data

0 0  
0 1  
1 0  
1 1  
10 10  
10 11  
11 10  
11 11

and labels

0 0  
0 1  
0 2  
0 3  
1 4  
1 5  
1 6  
1 7

Do not convert negative labels to 0. They must remain 0 for the logistic  
regression gradient descent.

Use eta=.01 and stopping condition of .0000001.

Your final w would be close to the one shown below. Note its similarity to  
the perceptron output.

w = 0.957672135162093 0.956767618860693  
||w||=1.35371348333622  
distance to origin = -6.83744723331703

You may also try the data

1 2  
2 1  
2 2  
2 3  
4 1  
4 2  
4 3  
50 2

and labels

0 0  
0 1  
0 2  
0 3  
1 4  
1 5  
1 6  
1 7

For this example, the output would be similar to the one below

w = 6.77850714487713 -1.06370810572314  
||w||=6.86146005215591  
distance to origin = -2.60844880003425