Assignment 1

Deadline:

12/10 - 17/10	Group A
19/10 - 23/10	Group B

Implement a classifier using python and numpy and train it using the Hill-Climbing algorithm:

1. Generate 50 random points with 2 dimensions (x,y) that have the label -1. Generate x in the interval [0,45] and y in the interval [0,100]
2. Generate 50 random points with 2 dimensions (x,y) that have the label 1. Generate x in the interval [55, 100] and y in the interval [0,100]

Random generate 3 parameters (a, b and c) that define a line according to the following equation (c must be in the interval 0-100).

$$ax+by+c = 0.$$

Using Hill-Climbing, adjust the a, b and c parameters such that all the points are correctly classified: the first set of the points is on one side of the line, the other set is on the other side of the line.

Don't use python lists. Use numpy arrays.