The Report of 4th Programming Homework

Implement the learning algorithms for perceptron in both original and dual form.

Test your program with the following training data:

And verify these data are linearly separable.

First, I plot the point and realize that we cannot separate those point in the form:

So we need an bias *b*.

***For the original form******, the training process are as follow:***

1. Initialize and b = 0
2. Select from the training dataset
3. If

1. Turn to step 2) until there is no miss classified

***Result:***

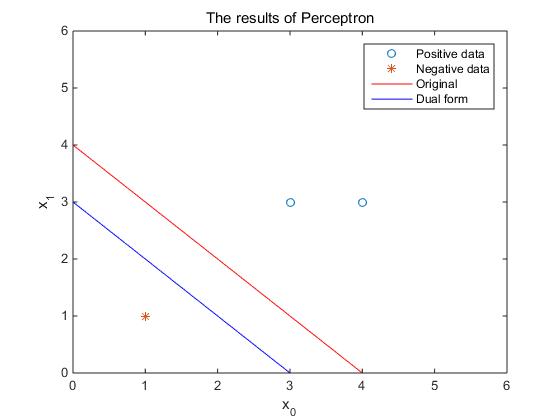
***For the dual form, , the training process are as follow:***

1. Initialize
2. Select from the training dataset
3. If

1. Turn to step 2) until there is no miss classified

***Result:***

And at last we can get the figure:



From the figure, the implement of perceptron learning algorithm in both original and dual form work well and training data is linearly separable.