

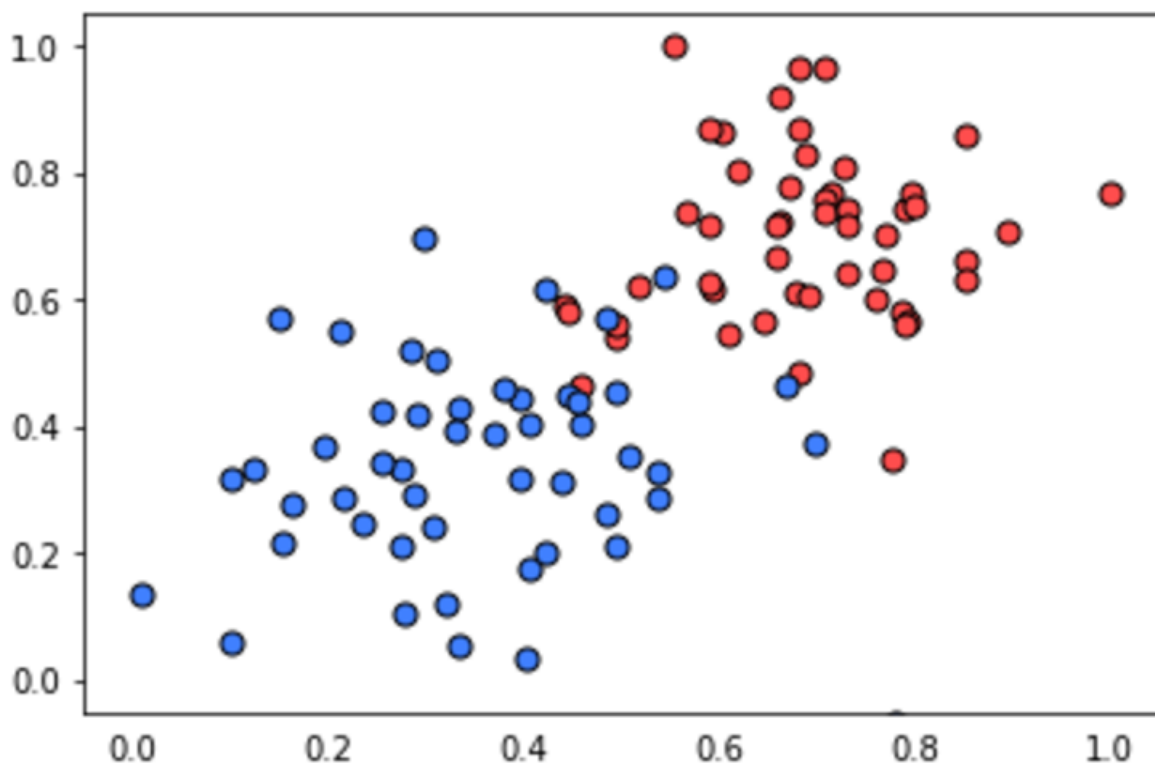
Perceptron Algorithm

And now, with the perceptron trick in our hands, we can fully develop the perceptron algorithm! The following video will show you the pseudocode, and in the quiz below, you'll have the chance to code it in Python.

There's a small error in the above video in that W_i should be updated to $W_i = W_i + \alpha x_i W_i$ (plus or minus depending on the situation).

Coding the Perceptron Algorithm

Time to code! In this quiz, you'll have the chance to implement the perceptron algorithm to separate the following data (given in the file data.csv).



Recall that the perceptron step works as follows. For a point with coordinates (p, q) , label y , and prediction given by the equation $\hat{y} = \text{step}(w_1 + w_2 + b)$:

- If the point is correctly classified, do nothing.
- If the point is classified positive, but it has a negative label, subtract $\alpha p, \alpha q$, and α from w_1, w_2 and b respectively.
- If the point is classified negative, but it has a positive label, add $\alpha p, \alpha q$, and α from w_1, w_2 and b respectively.