Classification
Single Perceptron Neural Network

0

bias

25.84

11.47

$h_0 = logistic(0 \times 11.47 + 0 \times 11.72 + 25.84) = 0.99$

9.91

bias

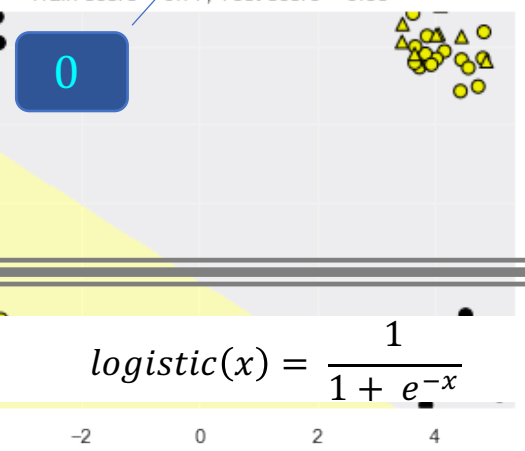
−9.06

$\hat{y} = logistic(9.91 \times 0.99 - 9.06) = 0.7$

11.72

Single perceptron
Train score = 0.77, Test score = 0.68

0



$$logistic(x) = \frac{1}{1 + e^{-x}}$$

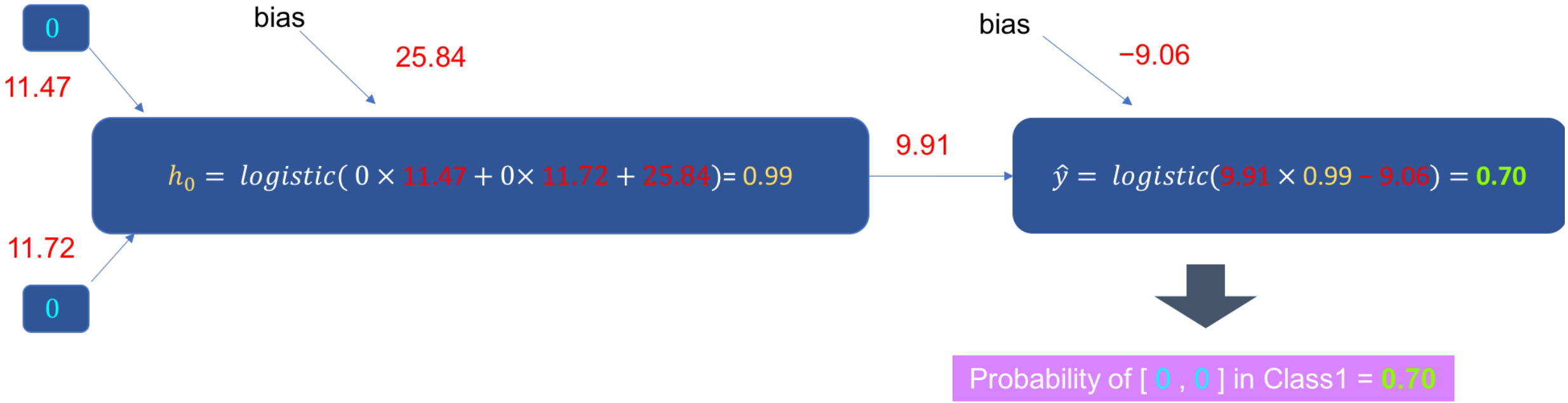
−2 0 2 4

Probability of [0 , 0] in Class1 = 0.70

single_perceptron.coefs_ = [array([[11.47], [11.72]]), array([[9.91]])]

single_perceptron.intercepts_ = [array([25.84]), array([-9.06])]

Classification
Single Perceptron Neural Network



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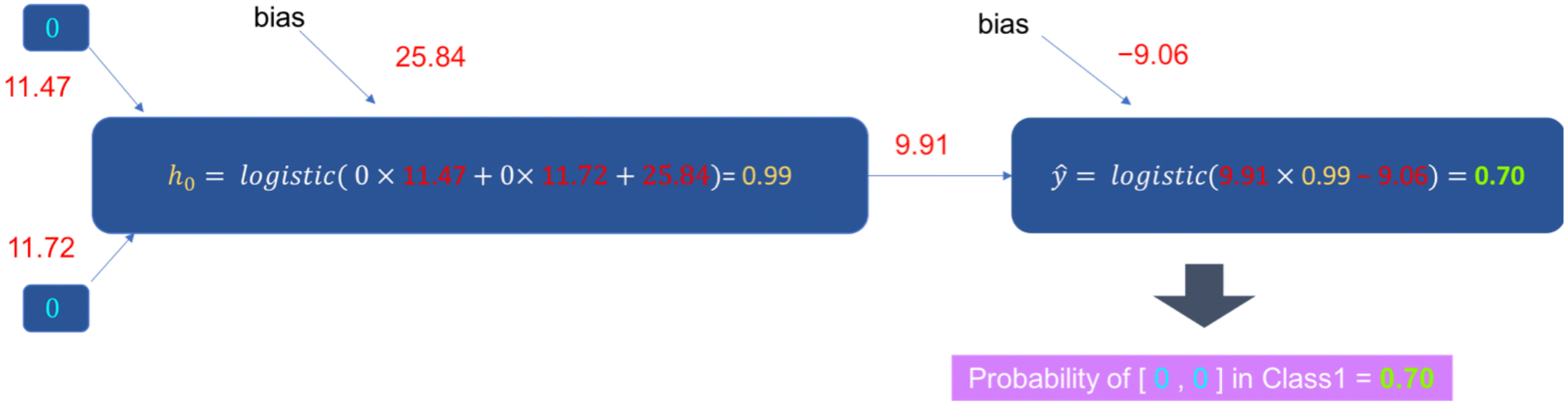
Classification
Single Perceptron Neural Network



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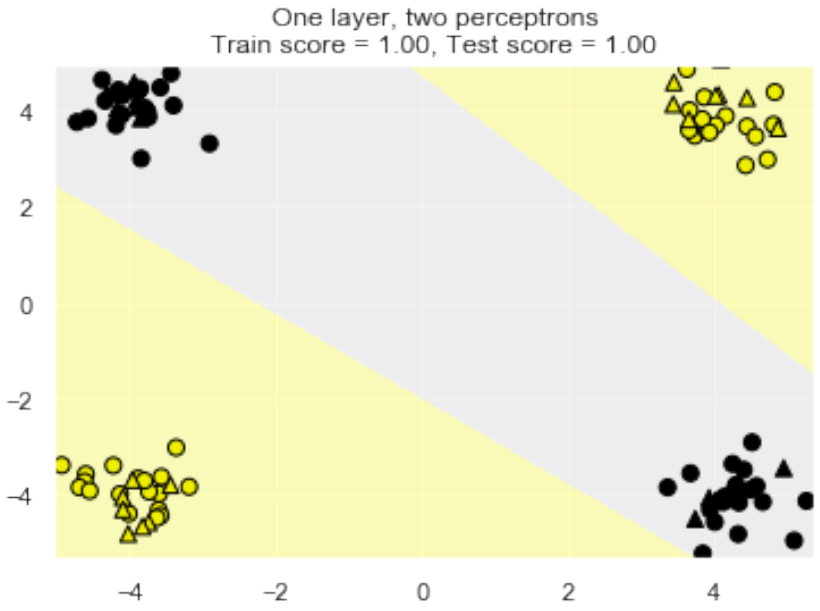
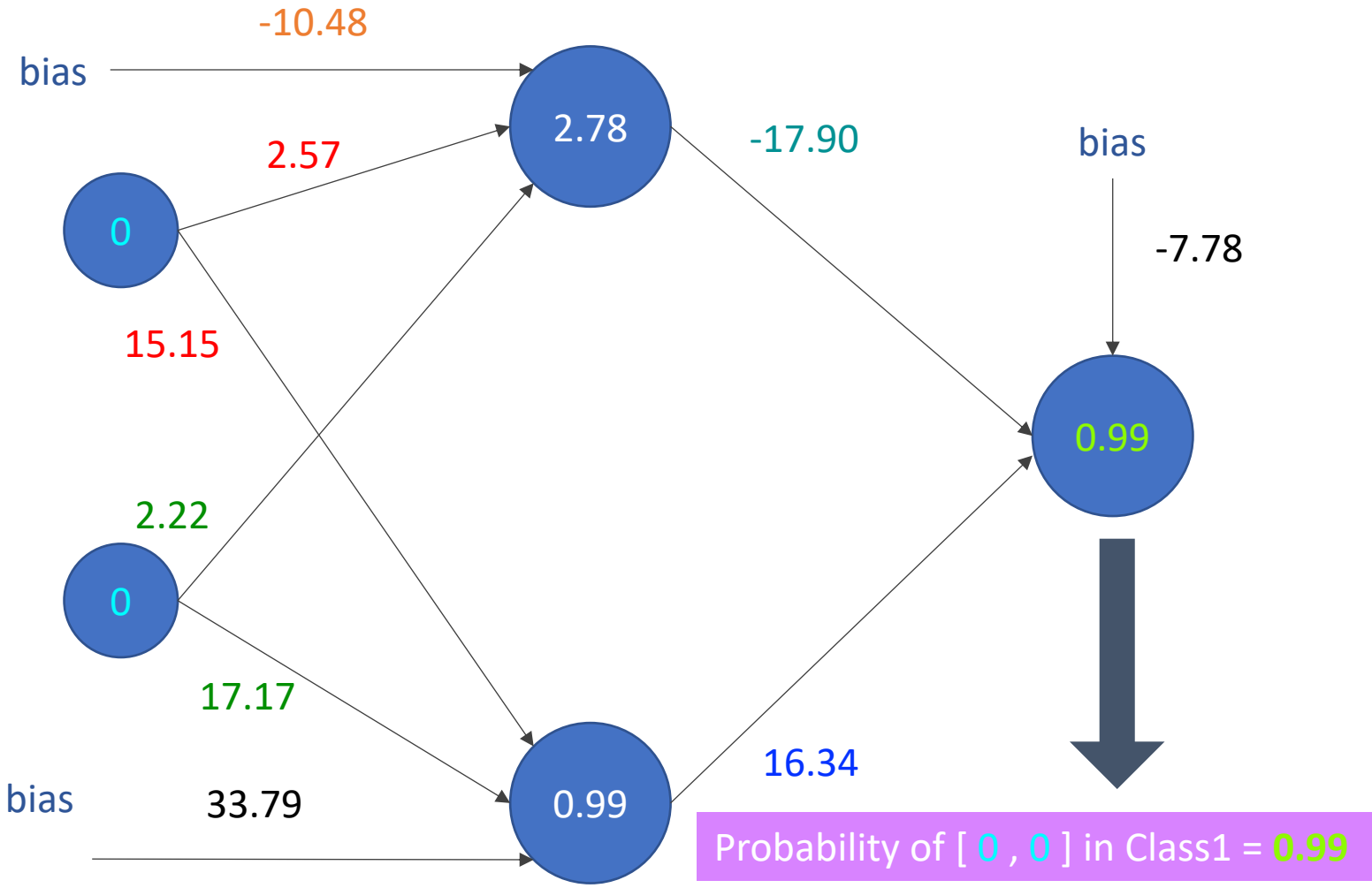
Classification
One Hidden Layer
Two Perceptron Neural Network

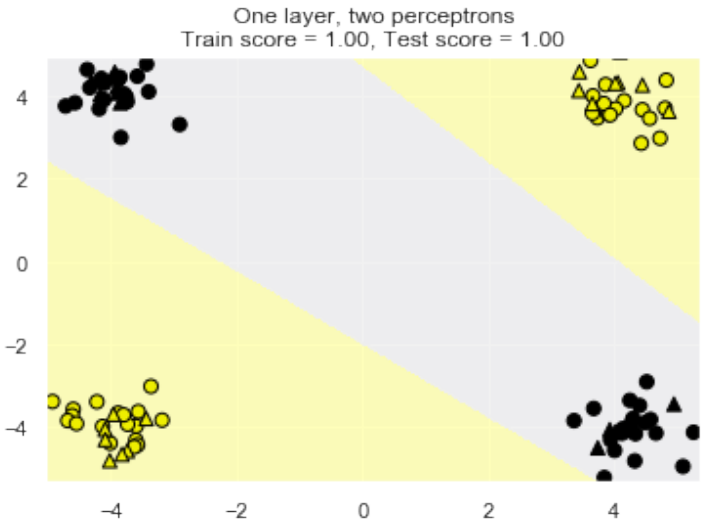


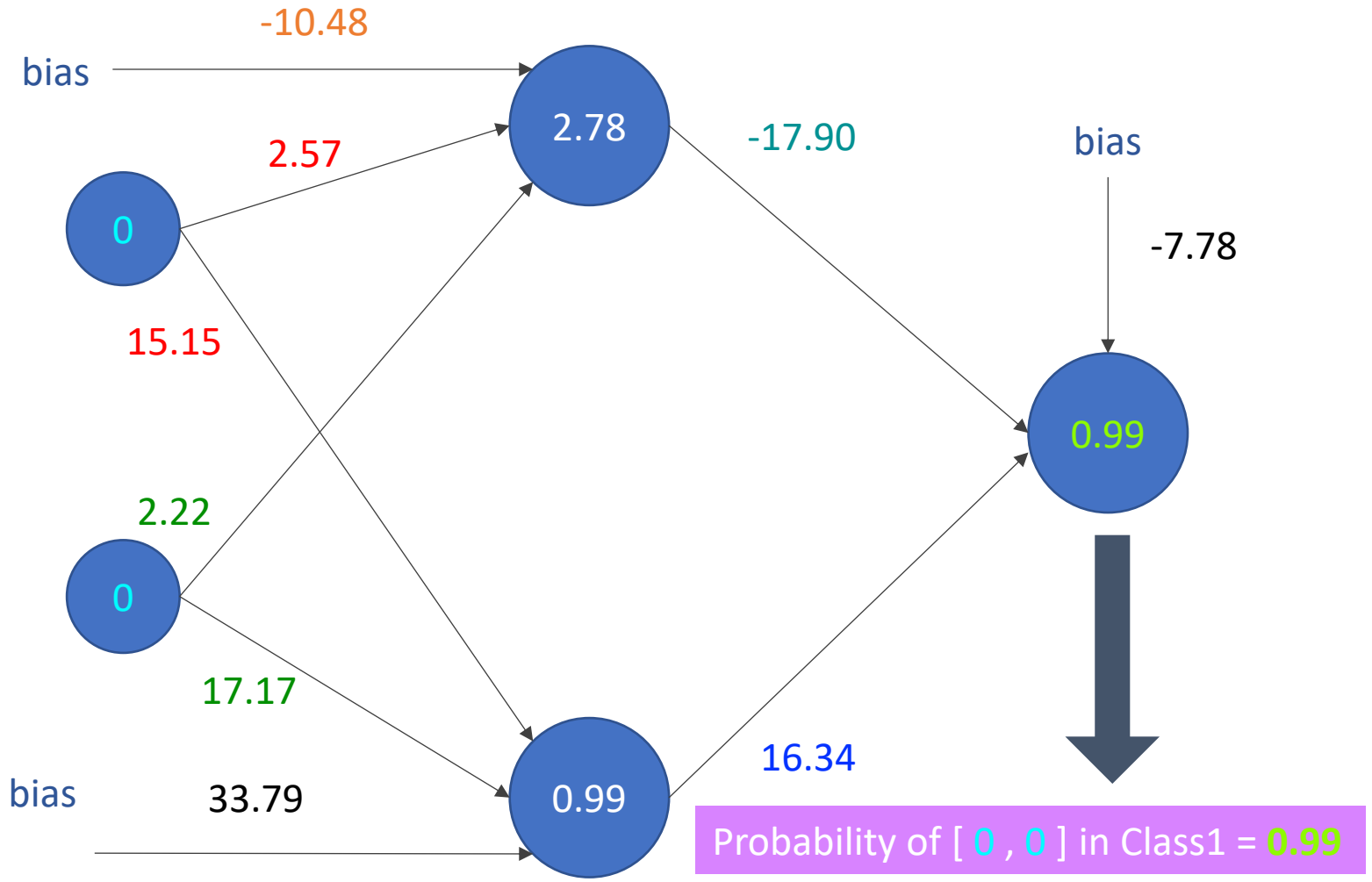



```
one_layer_two_perceptron.coefs_=  [array([[ 2.57310099, 15.15580369],
                                           [ 2.22532429, 17.17104028]]),
                                   array([[-17.90730925], [ 16.34434757]])]
one_layer_two_perceptron.intercepts_= [array([-10.4875464 , 33.79610677]), array([-7.78717227])]
hidden_output_1 = sigmoid((one_layer_two_perceptron.coefs_[0][0,0] * x[0] +
                           one_layer_two_perceptron.coefs_[0][0,1]* x[1]) +
                           one_layer_two_perceptron.intercepts_[0][0])
```

Classification

One Hidden Layer Two Perceptrons Neural Network



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```