# Part 1

Find a linear discriminant that separates the patterns in the logical OR dataset.

* Choose that points toward the (1, 1) data point.
* Use (0, 0.6) to calculate the bias.

1. Find the equation of the decision boundary and draw it to the attribute-space diagram.

|  |  |
| --- | --- |
| Bias: |  |
| Decision boundary: |

1. Calculate the margins of the open circle and closed circles patterns.

|  |  |
| --- | --- |
| Open-circles margin: | Closed-circles margin: |
|  |  |

# Part 2

|  |  |
| --- | --- |
| Use PLA with **specified initial weights and bias** to find a weight vector and bias that separates the 2 points below in 3D attribute space**.**   * Assume the output of the perceptron is |  |

1. Report the resulting weight vector, bias, and the equation of the decision boundary.

|  |  |
| --- | --- |
| Point Classification Checks | Adjustments |
| is misclassified, and |  |
| is misclassified, and |  |
| is correctly classified, and | Linearly Discriminated  Decision Boundary: |
| is correctly classified, and |

1. Calculate the distances of the points from the decision boundary.

|  |  |
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