

My solution uses data points as split points. For each data point, the algorithm uses the given data point as the split point, then says anything greater than that point will be labeled as 1, and anything less gets the label 0. It also always labels the split point 1. This algorithm has a complexity of $O(n^2)$, since it has to iterate through the data twice, once for each split point, and again to try every split point. This has an accuracy just slightly above chance, which I think makes sense. The labels are randomly assigned, and we only have one leaf, so accuracy shouldn't be great regardless.

The program's output is as follows:

For the following data.txt:

(35221976, 1)

(8748949, 1)

(9950175, 1)

(-95512488, 0)

(59860504, 1)

if $x \geq 9950175$:

 Predicted label is 1

else:

 Predicted label is 0

Accuracy: 0.5608782435129741