

ComS 474

Homework 3

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Oct 6, 2020

Gini node impurity estimate = $1 - (\text{prob of } 1)^2 - (\text{prob of } -1)^2$

1 & 2)

Left Node (+1)	Right Node (-1)	Estimation of +1	Estimation of -1	Final Score
[1, 1]	[3, 3]	0.5	0.778	0.708
[2, 0]	[2, 4]	0	0.444	0.333

3) This threshold is just the opposite of Q2, so the impurity estimates would just be swapped:

Left Node (+1)	Right Node (-1)	Estimation of +1	Estimation of -1	Final Score
[2, 4]	[2, 0]	0.444	0	0.333

4)

Sample Number	Predicted Class
1	-1
2	1
3	1
4	-1
5	-1
6	-1
7	-1
8	-1