

Case ID	Attribute 1 Headache	Attribute 2 Spots	Attribute 3 Stiff-neck	Target/Class Diagnosis
1	Yes	Yes	Yes	Positive
2	No	Yes	No	Positive
3	Yes	No	Yes	Positive
4	No	Yes	Yes	Positive
5	Yes	Yes	Yes	Positive
6	No	No	Yes	Negative
7	No	Yes	No	Negative
8	No	Yes	No	Negative
9	Yes	No	No	Negative
10	No	No	No	Negative

$$I(X) = 1 - (0.5^2 + 0.5^2) = 0.5$$

Headache Calculation:

$$1 - ((3/4)^2 + (1/4)^2) = 0.375$$

$$1 - ((2/6)^2 + (4/6)^2) = 0.4444$$

$$0.5 - ((4/10 * 0.375) + (6/10 * 0.4444)) = 0.08336$$

Spots Calculation:

$$1 - ((4/6)^2 + (2/6)^2) = 0.4444$$

$$1 - ((1/4)^2 + (3/4)^2) = 0.375$$

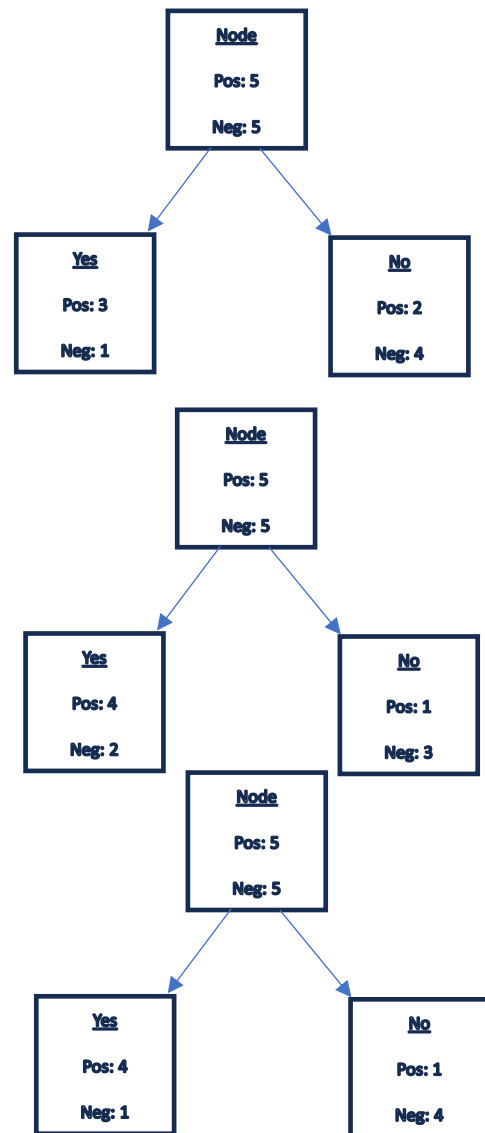
$$0.5 - ((6/10 * 0.4444) + (4/10 * 0.375)) = 0.08336$$

Stiff-neck Calculation:

$$1 - ((4/5)^2 + (1/5)^2) = 0.32$$

$$1 - ((1/5)^2 + (4/5)^2) = 0.32$$

$$0.5 - ((5/10 * 0.32) + (5/10 * 0.32)) = 0.18$$



### Yes Branch

$$I(X) = 1 - (1/5^2 + 4/5^2) = 0.32$$

Headache:

$$1 - ((3/3)^2 + (0/3)^2) = 0$$

$$1 - ((1/2)^2 + (1/2)^2) = 0.5$$

$$0.32 - ((3/5 * 0) + (2/5 * 0.5)) = 0.12$$

Spots:

$$1 - ((3/3)^2 + (0/3)^2) = 0$$

$$1 - ((1/2)^2 + (1/2)^2) = 0.5$$

$$0.32 - ((3/5 * 0) + (2/5 * 0.5)) = 0.12$$

### No Branch

$$I(X) = 1 - (1/5^2 + 4/5^2) = 0.32$$

Headaches:

$$1 - ((0/1)^2 + (1/1)^2) = 0$$

$$1 - ((1/4)^2 + (3/4)^2) = 0.375$$

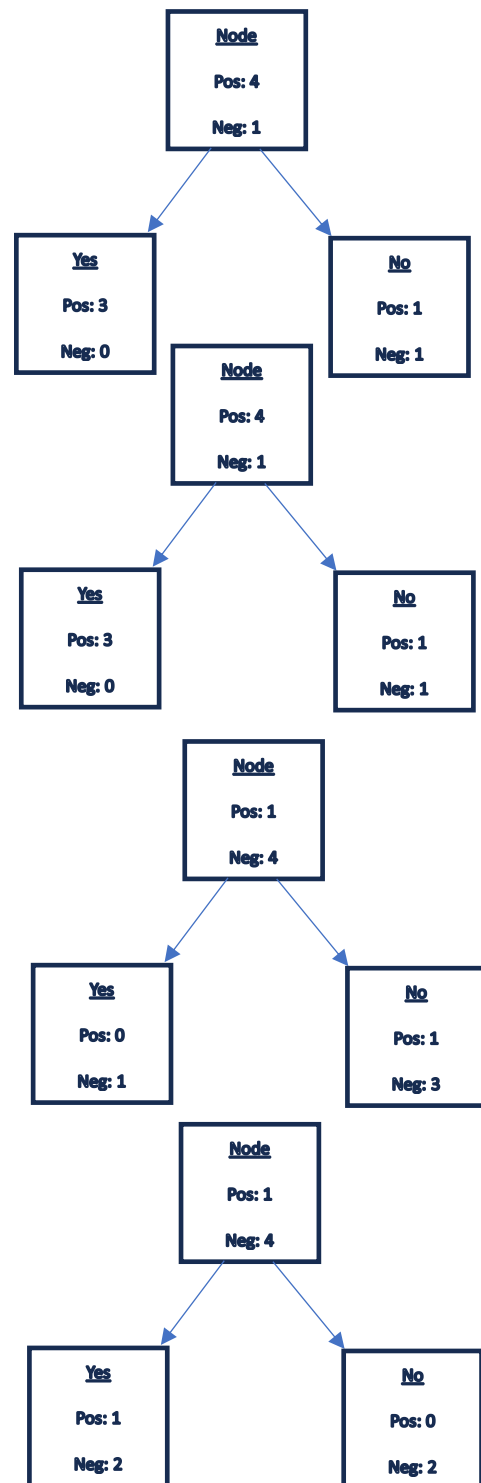
$$0.32 - ((1/5 * 0) + (4/5 * 0.375)) = 0.02$$

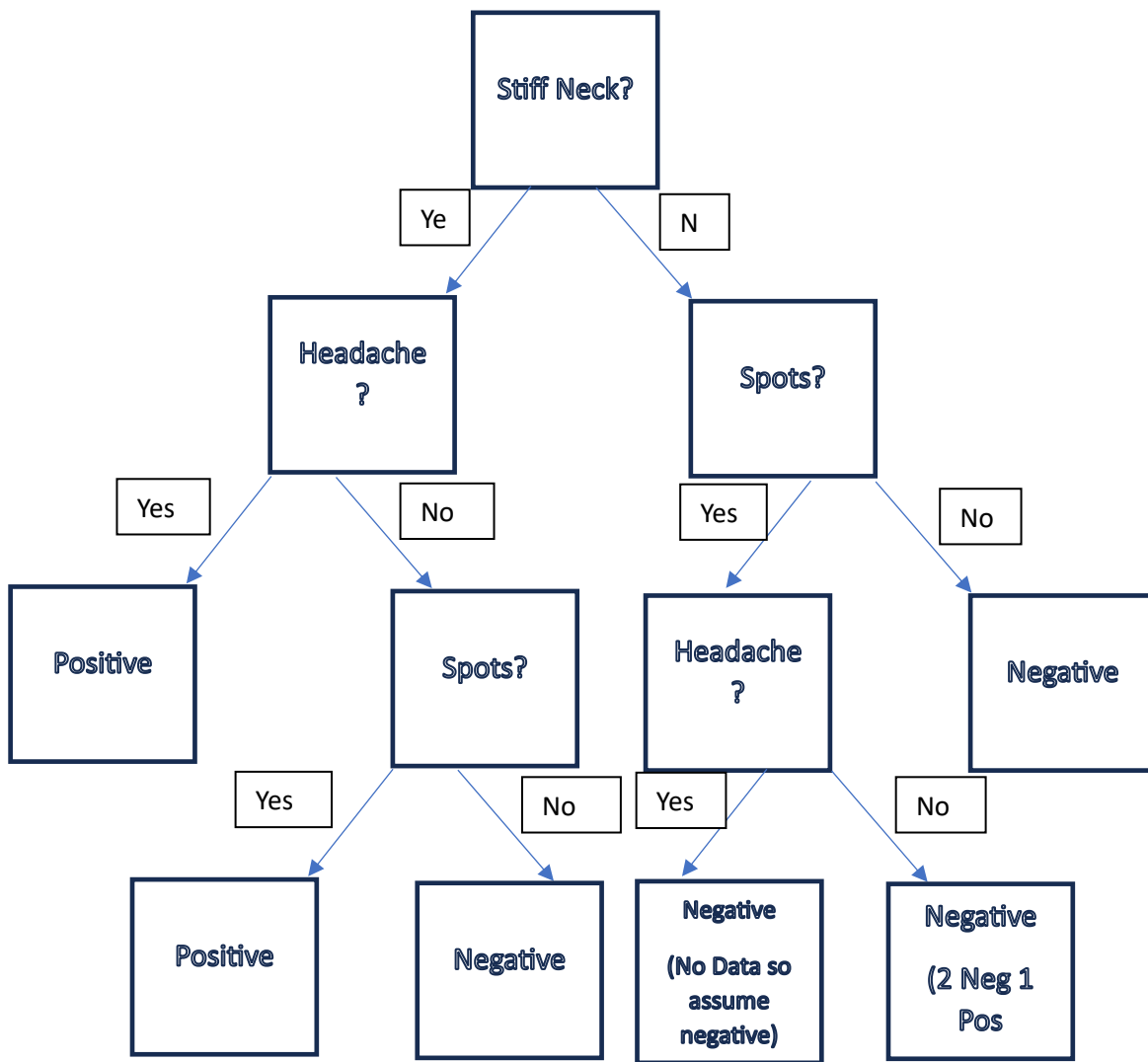
Spots:

$$1 - ((1/3)^2 + (2/3)^2) = 0.4444$$

$$1 - ((0/2)^2 + (2/2)^2) = 0$$

$$0.32 - ((3/5 * 0.4444) + (2/5 * 0)) = 0.05336$$





Which can be done the same as:

