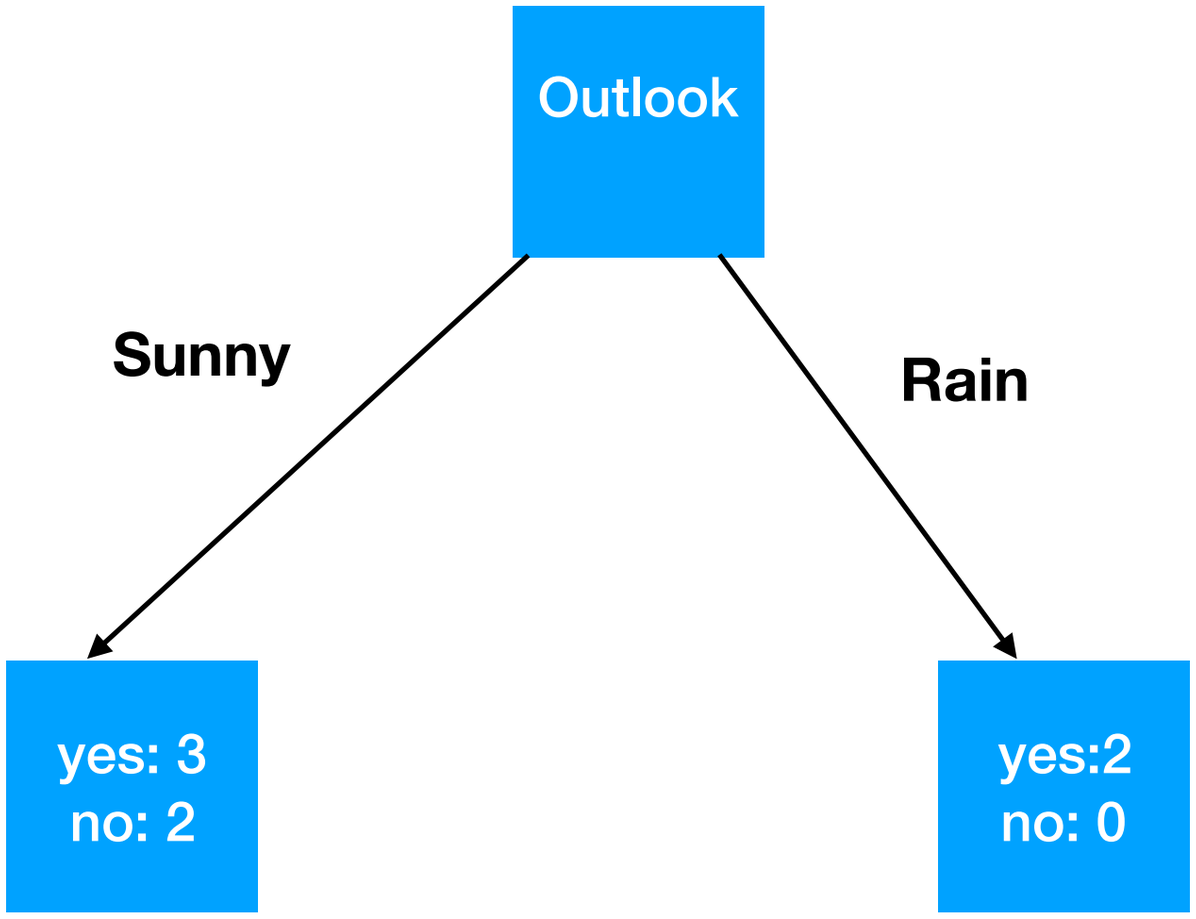
Exercise

Day	*Outlook*	*Wind*	*Humidity*	*Class*
1	Sunny	Strong	High	Yes
2	Sunny	Weak	High	Yes
3	Sunny	Weak	High	Yes
4	Rain	Strong	High	Yes
5	Rain	Weak	Normal	Yes
6	Sunny	Weak	Normal	No
7	Sunny	Strong	Normal	No



Outlook: = “sunny”

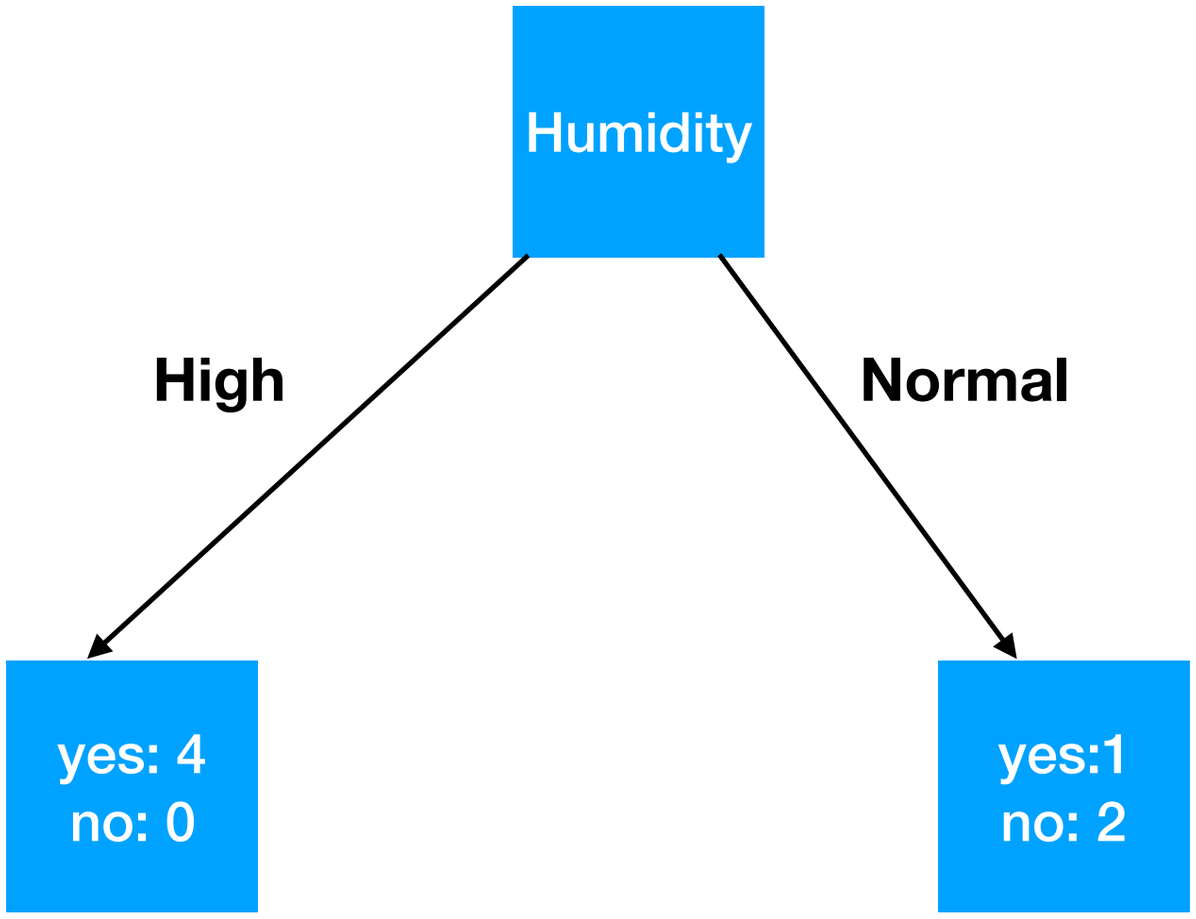
info[3,2] = entropy(3/5,2/5) = $-\frac{3}{5}log(\frac{3}{5}) - \frac{2}{5}log(\frac{2}{5}) = 0.2922bits$

Outlook: = “rain”

info[2,0] = entropy(1,0) = $-1log(1) - -0log(0) = 0bits$

info outlook =

info([3,2],[2,0]) = $(\frac{5}{7} * 0.2922) + (\frac{2}{7} * 0) = 0.2bits$



Outlook: = “high”

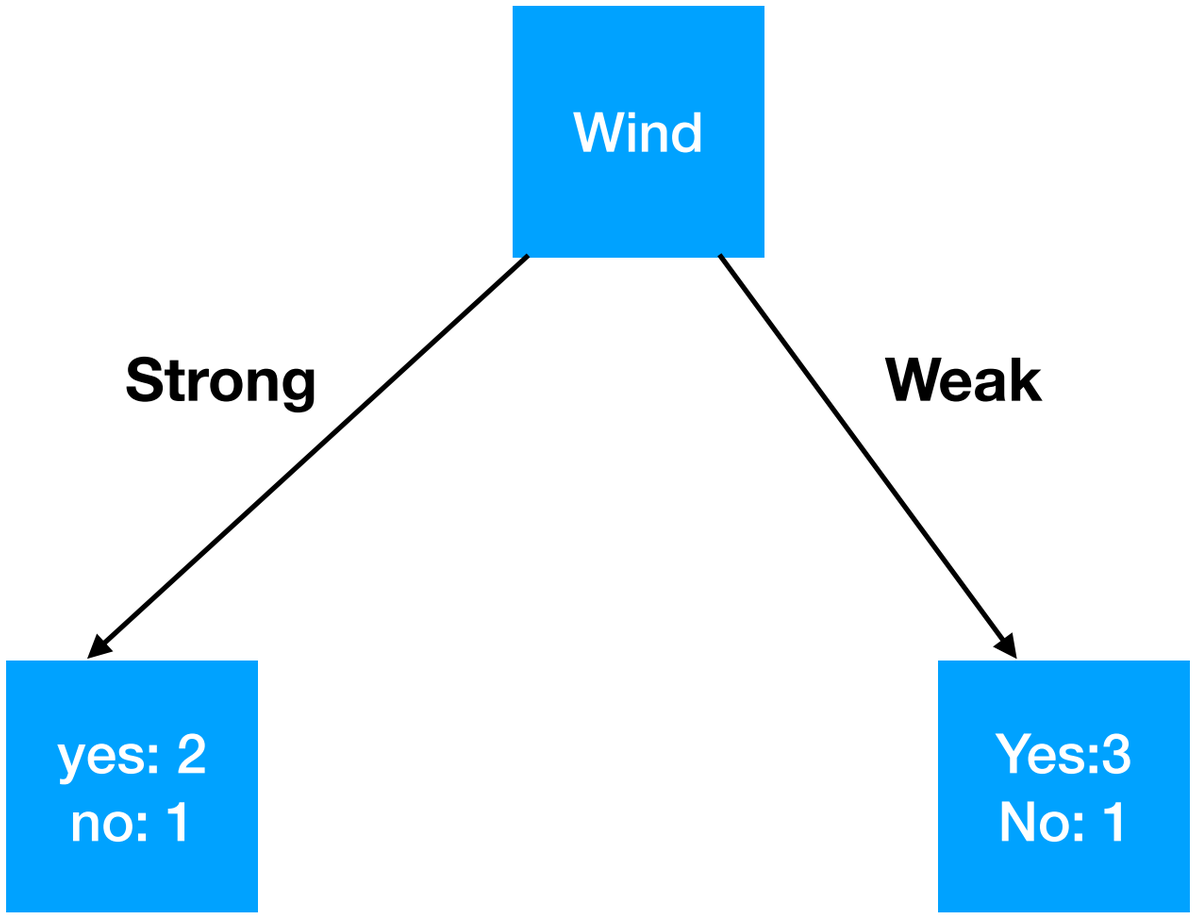
info[4,0] = entropy(1,0) = $-1log(1) - 0log(0) = 0bits$

Outlook: = “normal”

info[1,2] = entropy(1,0) = $-\frac{1}{3}log(\frac{1}{3}) - \frac{2}{3}log(\frac{2}{3}) = 0.276bits$

info outlook =

info([4,0],[1,2]) = $\frac{4}{7} * 0 + \frac{3}{7} * 0.276 = 0.118bits$



Outlook: = “Strong”

info[2,1] = entropy(1,0) = $-\frac{2}{3}log(\frac{2}{3}) - \frac{1}{3}log(\frac{1}{3}) = 0.276bits$

Outlook: = “Week”

info[3,1] = entropy(1,0) = $-\frac{3}{4}log(\frac{3}{4}) - \frac{1}{4}log(\frac{1}{4}) = 0.244bits$

info outlook =

info([2,1],[3,1]) = $\frac{3}{7} * 0.276 + \frac{4}{7} * 0.244 = 0.257bits$