ADS Assignment 9

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Naïve Bayes

Temp	Windy	Humid	Rain
H	1	L	0
H	1	M	1
L	1	H	1
L	1	L	0
H	0	L	0
H	0	M	1
L	0	L	0
L	0	M	0

$$P(R \mid T=H \,\&\, W \,\&\, H=H) = P(T=H \,\&\, W \,\&\, H=H \mid R) \cdot P(R) \quad \text{(Bayes)}$$

$$= P(T=H \mid R) \cdot P(W \mid R) \cdot P(H=H \mid R) \cdot P(R) \quad \text{(independence)}$$

$$= .67 \cdot .67 \cdot .33 \cdot .375 = .0556$$

$$P(!R \mid T=H \,\&\, W \,\&\, H=H) = P(T=H \mid !R) \cdot P(W \mid !R) \cdot P(H=H \mid !R) \cdot P(!R)$$

$$= .25 \cdot .4 \cdot 0 \cdot .625 = 0$$

From data $P(\text{rain}) = 1$!