[yes,no]

$$H(6,8) = -\left[\frac{6}{14}\log_2\left(\frac{6}{14}\right) + \frac{8}{14}\log_2\left(\frac{8}{14}\right)\right] = 0,9852$$

Split at Temperature:

$$\text{Temperature = high: } H(2,5) = -\left[\frac{2}{7}\log_2\left(\frac{2}{7}\right) + \frac{5}{7}\log_2\left(\frac{5}{7}\right)\right] = 0,8631$$

$$\text{Temperature = low: } H(4,3) = -\left[\frac{4}{7}\log_2\left(\frac{4}{7}\right) + \frac{3}{7}\log_2\left(\frac{3}{7}\right)\right] = 0,9852$$

$$\text{Gain: } H(6,8) - H\left[\frac{7}{14}H(2,5) + \frac{7}{14}H(4,3)\right] = \text{0,01615}$$

Split at Rain:

$$\text{Rain = yes: } H(0,7) = -\left[\frac{0}{7}\log_2\left(\frac{0}{7}\right) + \frac{7}{7}\log_2\left(\frac{7}{7}\right)\right] = 0$$

$$\text{Rain = no: } H(6,1) = -\left[\frac{6}{7}\log_2\left(\frac{6}{7}\right) + \frac{1}{7}\log_2\left(\frac{1}{7}\right)\right] = 0,5916$$

$$\text{Gain: } H(6,8) - H\left[\frac{7}{14}H(0,7) + \frac{7}{14}H(5,2)\right] = \text{0,6894}$$

Split at Windy:

$$\text{Windy = True: } H(2,5) = -\left[\frac{2}{7}\log_2\left(\frac{2}{7}\right) + \frac{5}{7}\log_2\left(\frac{5}{7}\right)\right] = 0,8631$$

$$\text{Windy = False: } H(4,3) = -\left[\frac{4}{7}\log_2\left(\frac{4}{7}\right) + \frac{3}{7}\log_2\left(\frac{3}{7}\right)\right] = 1,3781$$

$$\text{Gain: } H(6,8) - H\left[\frac{7}{14}H(2,5) + \frac{7}{14}H(4,3)\right] = \text{0,1354}$$

Split at Humidity:

$$\text{Humidity = High: } H(3,4) = -\left[\frac{3}{7}\log_2\left(\frac{3}{7}\right) + \frac{4}{7}\log_2\left(\frac{4}{7}\right)\right] = 0,9852$$

$$\text{Humidity = Low: } H(3,4) = -\left[\frac{3}{7}\log_2\left(\frac{3}{7}\right) + \frac{4}{7}\log_2\left(\frac{4}{7}\right)\right] = 0,9852$$

$$\text{Gain: } H(6,8) - H\left[\frac{7}{14}H(3,4) + \frac{7}{14}H(3,4)\right] = \boxed{0}$$

RAIN: No

$$H(6,1) = -\left[\frac{6}{7}\log_2\left(\frac{6}{7}\right) + \frac{1}{7}\log_2\left(\frac{1}{7}\right)\right] = 0,5917$$

Split at Temperature:

$$\text{Temperature = High: } H(2,0) = -\left[\frac{2}{2}\log_2\left(\frac{2}{2}\right) + \frac{0}{2}\log_2\left(\frac{0}{2}\right)\right] = 0$$

$$\text{Temperature = Low: } H(4,1) = -\left[\frac{4}{5}\log_2\left(\frac{4}{5}\right) + \frac{1}{5}\log_2\left(\frac{1}{5}\right)\right] = 0,7220$$

$$\text{Gain: } H(6,1) - H\left[\frac{2}{7}H(2,0) + \frac{5}{7}H(4,1)\right] = \boxed{0{,}0760}$$

Split at Windy:

$$\text{Windy = True: } H(2,1) = -\left[\frac{2}{3}\log_2\left(\frac{2}{3}\right) + \frac{1}{3}\log_2\left(\frac{1}{3}\right)\right] = 0,9183$$

$$\text{Windy = False: } H(4,0) = -\left[\frac{4}{4}\log_2\left(\frac{4}{4}\right) + \frac{0}{4}\log_2\left(\frac{0}{4}\right)\right] = 0$$

$$\text{Gain: } H(6,1) - H\left[\frac{3}{7}H(2,1) + \frac{4}{7}H(4,0)\right] = \boxed{0{,}4695}$$

Split at Humidity:

$$\text{Humidtiy = High: } H(3,0) = -\left[\frac{3}{3}\log_2\left(\frac{3}{3}\right) + \frac{0}{3}\log_2\left(\frac{0}{3}\right)\right] = 0$$

$$\text{humidity = Low: } H(3,1) = -\left[\frac{3}{4}\log_2\left(\frac{3}{4}\right) + \frac{1}{4}\log_2\left(\frac{1}{4}\right)\right] = 0,8113$$

$$\text{Gain: } H(6,1) - H\left[\frac{3}{7}H(2,1) + \frac{4}{7}H(3,1)\right] = \boxed{0{,}1281}$$

Rain: no, Windy: True

$$H(2,1) = -\left[\frac{2}{3}\log_2\left(\frac{2}{3}\right) + \frac{1}{3}\log_2\left(\frac{1}{3}\right)\right] = 0,9183$$

Split at Temperature:

$$\text{Temperature = High: } H(0,0) = -\left[\frac{0}{0}\log_2\left(\frac{0}{0}\right) + \frac{0}{0}\log_2\left(\frac{0}{0}\right)\right] = 0$$

$$\text{Temperature = Low: } H(2,1) = -\left[\frac{2}{3}\log_2\left(\frac{2}{3}\right) + \frac{1}{3}\log_2\left(\frac{1}{3}\right)\right] = 0,9183$$

$$\text{Gain: } H(2,1) - H\left[0 + \frac{3}{3}H(2,1)\right] = \boxed{0}$$

Split at Humidity:

$$\text{Humidity = High: } H(2,0) = -\left[\frac{2}{2}\log_2\left(\frac{2}{2}\right) + \frac{0}{2}\log_2\left(\frac{0}{2}\right)\right] = 0$$

$$\text{Humidity = Low: } H(0,1) = -\left[0 + \frac{1}{1}\log_2\left(\frac{1}{1}\right)\right] = 0$$

$$\text{Gain: } H(2,1) - H\left[\frac{2}{3}H(2,0) + \frac{1}{3}H(0,1)\right] = \boxed{0,9183}$$

Rain: no, windy: False

$$H(1,2) = -\left[\frac{1}{3}\log_2\left(\frac{1}{3}\right) + \frac{2}{3}\log_2\left(\frac{2}{3}\right)\right] = 0,9183$$

$$DS = \frac{2\text{TP}}{2TP + FP + FN}$$

$$\text{Information Gain } = \text{Entropy(Parent)} - \text{Average Entropy(Children)}$$