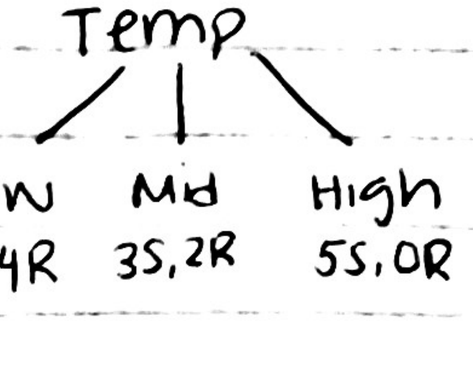
1 Split on Temp

High - 5 Sunny, 0 Rainy 5 samples
Mid - 3 Sunny, 2 Rainy 5 samples
LOW - 0 Sunny, 4 Rainy 4 samples



High: $H(x) = -\left[\frac{5}{5}\log_2\left(\frac{5}{5}\right) + 0\log_2(0)\right] = 0$ bit

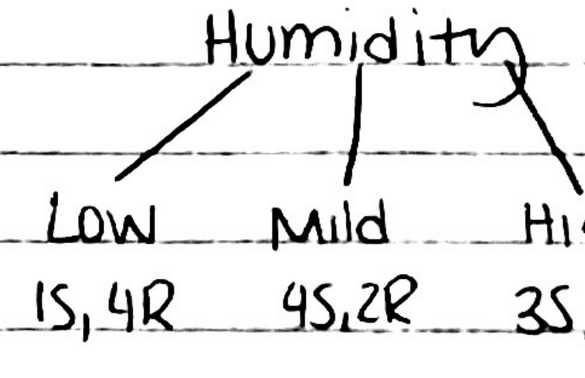
Mid: $H(x) = -\left[\frac{3}{5}\log_2\left(\frac{3}{5}\right) + \frac{2}{5}\log_2\left(\frac{2}{5}\right)\right] = 0.97$ bit

Low: $H(x) = -\left[0\log_2(0) + \frac{4}{4}\log_2\left(\frac{4}{4}\right)\right] = 0$ bit

$E(H(x)) = \frac{5}{14} \times 0 + 0.97 \times \frac{5}{14} + \frac{4}{14} \times 0 = \boxed{0.34}$

Split on Humidity

High - 1 Sunny, 4 Rainy 5 samples
Mild - 4 Sunny, 2 Rainy 6 samples
Low - 3 Sunny, 0 Rainy 3 samples



High: $H(x) = -\left[\frac{1}{5}\log_2\left(\frac{1}{5}\right) + \frac{4}{5}\log_2\left(\frac{4}{5}\right)\right] = 0.72$ bit

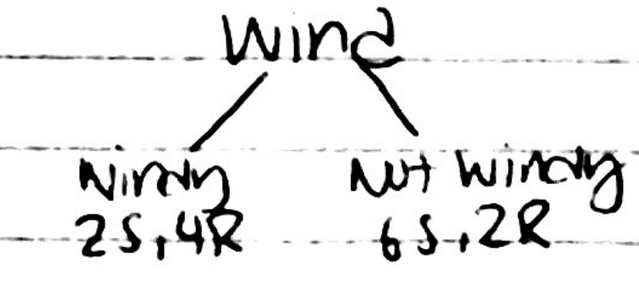
Mild: $H(x) = -\left[\frac{4}{6}\log_2\left(\frac{4}{6}\right) + \frac{2}{6}\log_2\left(\frac{2}{6}\right)\right] = 0.91$ bit

Low: $H(x) = -\left[\frac{3}{3}\log_2\left(\frac{3}{3}\right) + \frac{0}{3}\log_2\left(\frac{0}{3}\right)\right] = 0$ bit

$E(H(x)) = 0.72 \times \left(\frac{5}{14}\right) + 0.91\left(\frac{6}{14}\right) + 0\left(\frac{3}{14}\right) = \boxed{0.64}$

Split on Wind:

Windy - 2 Sunny, 4 Rainy 6 samples
Not Windy - 6 Sunny, 2 Rainy 8 samples



Windy: $H(x) = -\left[\frac{2}{6}\log_2\left(\frac{2}{6}\right) + \frac{4}{6}\log_2\left(\frac{4}{6}\right)\right] = 0.92$ bit

Not Windy: $H(x) = -\left[\frac{6}{8}\log_2\left(\frac{6}{8}\right) + \frac{2}{8}\log_2\left(\frac{2}{8}\right)\right] = 0.81$ bit

$E(H(x)) = 0.92 \times \left(\frac{6}{14}\right) + 0.81 \times \left(\frac{8}{14}\right) = \boxed{0.85}$

Total Sunny: 8/14
Total Raing: 6/14

Entropy before split:
$= -\left[\frac{8}{14} \cdot \log_2\left(\frac{8}{14}\right) + \frac{6}{14} \log_2\left(\frac{6}{14}\right)\right] = 0.98$ bit

Information Gain:
① Temp: $0.98 - 0.34 = \boxed{0.64}$
② Humidity: $0.98 - 0.64 = 0.34$
③ Wind: $0.98 - 0.85 = 0.13$

Best Feature to split on is Temperature since it minimizes entropy and provides more information gain.