Lab1 -Decision Tree

Information

MONK-3 has 5% noise in a training data

- MONK-1\ a1 == a2 || a5 ==1
- MONK-2\ ($a_i == 1 for exactly two i = 1..6$
- MONK-3\ (a5==1 && a4==1)||(a5 != 4 && a2 !=3)

Assignment0

MONK-3 MONK-3 makes a decision tree algorithm learn, because it has 5% noise in the training data. The others don't have any nose, so these are easier for the decision algorithm to learn than MONK-3

Assignment1

monk-1: 1.0 monk-2: 0.957117428264771 monk-3: 0.9998061328047111

Assignment2

- Uniform Distribution

The entropy become maximul value. Suppose that we have $P(X = x_n) = frac1N$ where X takes the value $X = [x_1, x2, ..., x_N]$(N={1. . . ..}). Then, entropy is

$$Entropy(S) = -\Sigma_{n=1}^{N} P(X = x_n) log_2 P(x = x_n) = -\Sigma_{n=1}^{N} \frac{1}{N} log_2 \frac{1}{N} = N \times \frac{1}{N} log_2 N = log_2 N$$