CODO 2017

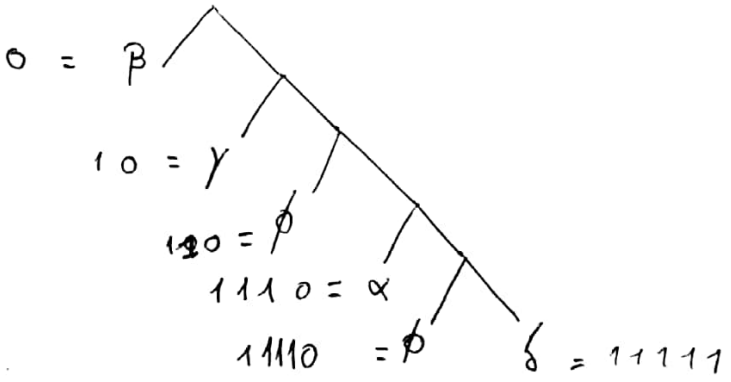
Exercice 1

1) $P_\beta = 7/20$ | $P_\gamma = 5/20$ | $P_\phi = 4/20$ | $P_\tau = 1/20$ | $P_\alpha = 2/20$ | $P_\delta = 1/20$

$$H = -\left[\frac{7}{20}\log_2\left(\frac{7}{20}\right) + \frac{1}{4}\log_2\left(\frac{1}{4}\right) + \frac{1}{20}\log_2\left(\frac{1}{20}\right) + \frac{1}{5}\log_2\left(\frac{1}{5}\right) + \frac{1}{10}\log_2\left(\frac{1}{10}\right) + \frac{1}{20}\log_2\left(\frac{1}{20}\right)\right]$$

$H = 0,18$

2)



3). Nbre characters × entropie = Taille minimale du fichier

$1000 \times 0,8 = 800$

• Taille encodage Huffman

$(P_\beta \times \text{nbbithuffman}_\beta + \dots) \times 1000$

$$\left(\frac{7}{20} \times 1 + \frac{5}{20} \times 2 + \frac{4}{20} \times 3 + \frac{2}{20} \times 4 + \frac{1}{20} \times 5 + \frac{1}{20} \times 5\right) \times 1000$$

$(7 \times 1 + 5 \times 2 + 4 \times 3 + 2 \times 4 + 1 \times 5 + 1 \times 5) \times 50$

$(7 + 10 + 12 + 8 + 10) \times 50 = 47 \times 50 = 2350$