$S = abac$

$P(a) = \frac{1}{2}$

$P(b) = P(c) = \frac{1}{4}$

$f(a) = 0$

$f(b) = \frac{1}{2}$

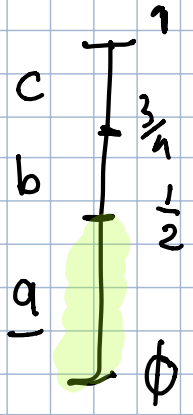
$f(c) = \frac{3}{4}$

$S_\phi = 1 \quad l_\phi = \phi$

① Si prende a prima carattere della stringa
Calcoliamo

$S_i = 1 \cdot \frac{1}{2} = \frac{1}{2}$

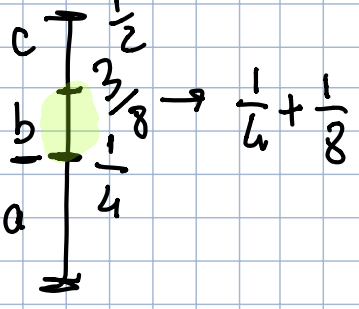
$l_i = 0 + 1 \cdot \phi = \phi$



② Prendiamo b secondo carattere e calcoliamo

$S_2 = \frac{1}{2} \cdot \frac{1}{4} = \frac{1}{8}$

$l_2 = \phi + \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$

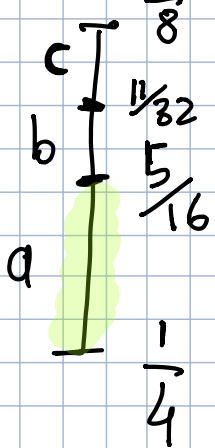


Prendiamo il blocco di a e lo dividiamo

③ Prendiamo a e calcoliamo

$S_3 = \frac{1}{8} \cdot \frac{1}{2} = \frac{1}{16}$

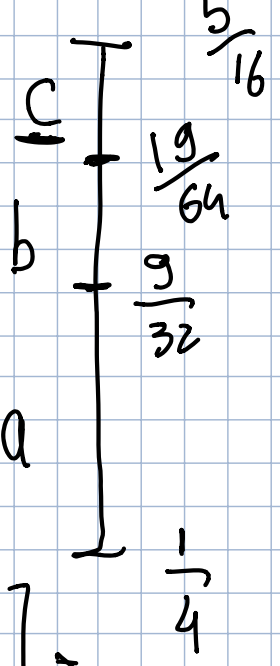
$l_3 = \frac{1}{4} + \frac{1}{8} \cdot 0 = \frac{1}{4}$



④ Prendiamo C

$$S_4 = \frac{1}{16} \cdot \frac{1}{4} = \frac{1}{64}$$

$$l_4 = \frac{1}{4} + \frac{1}{16} \cdot \frac{3}{4} = \frac{19}{64}$$



$$output = < x \in \left[\frac{19}{64}, \frac{19}{64} + \frac{1}{64}\right] >$$

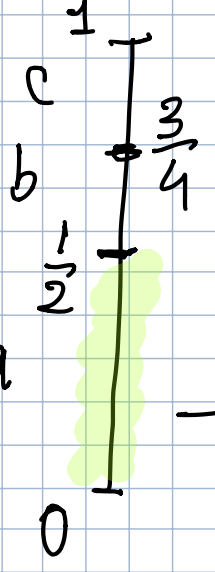
$$< x \in \left[\frac{19}{64}, \frac{5}{16}\right)$$

DECODIFICA

$$< \frac{39}{128}, 4 >$$

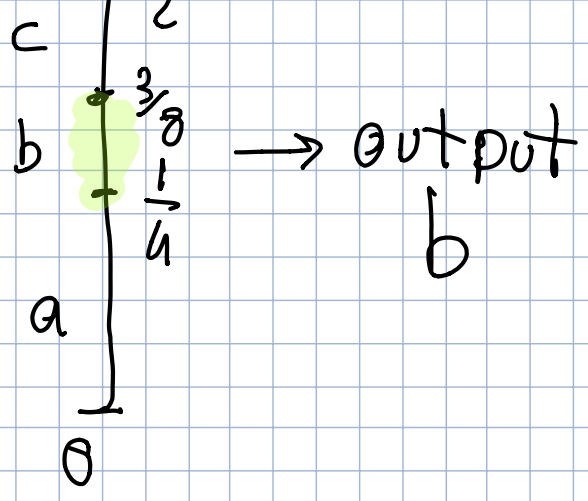
$$P(a) = \frac{1}{2} \qquad P(B) = P(C) = \frac{1}{4}$$

① Partiamo con il range $[0,1)$ e dividiamo in base alle probabilità; Vediamo dove sta $\frac{39}{128}$, quel range indica la lettera.

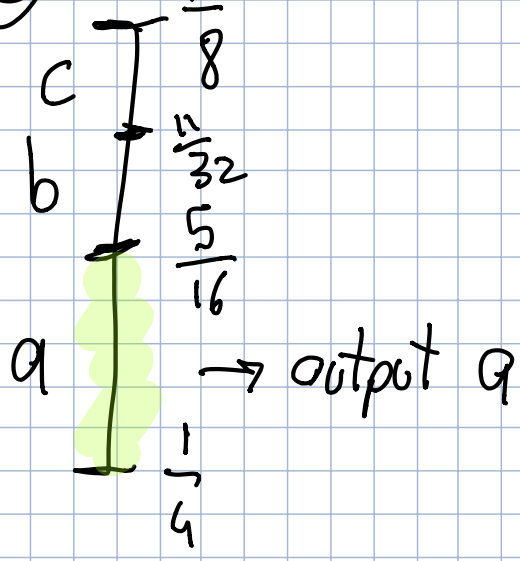


$$\frac{39}{128} \in \left[0, \frac{1}{2}\right) \longrightarrow \text{output a}$$

② ③

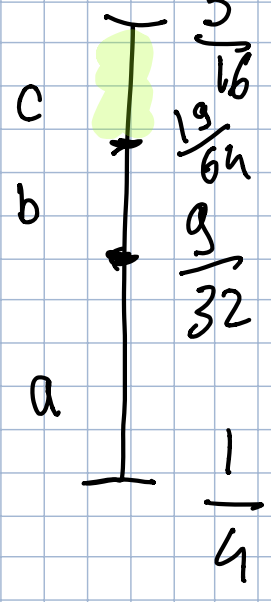


→ output b



→ output a

(4)



→ output c

abac