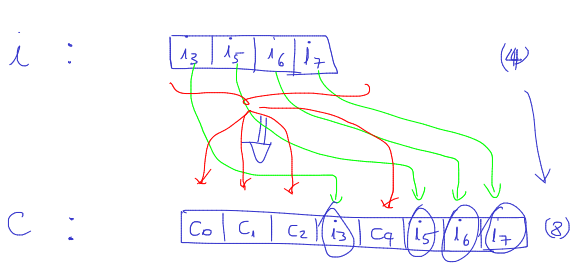
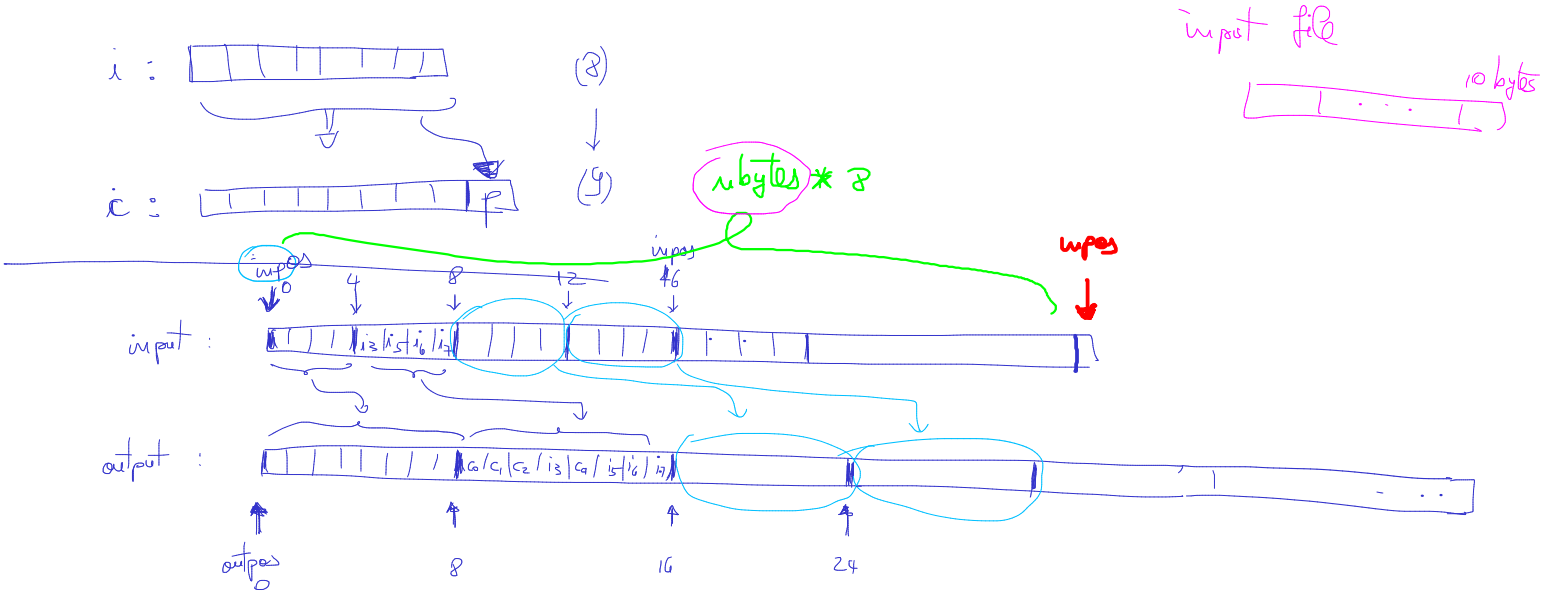
Hamming (7, 4)

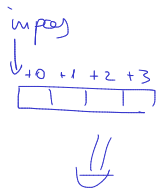
Hamming (8, 4)



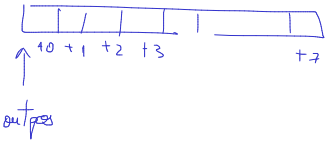
$$C_0 = C_1 \oplus C_2 \oplus i_3 \oplus C_4 \oplus i_5 \oplus i_6 \oplus i_7 = i_3 \oplus i_5 \oplus i_6$$

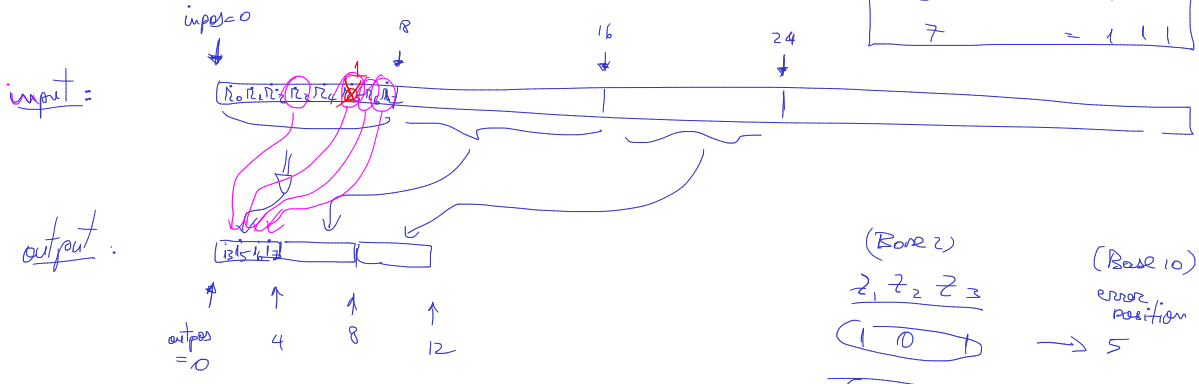
$$\begin{cases} C_1 = i_3 \oplus i_5 \oplus i_7 \\ C_2 = i_3 \oplus i_6 \oplus i_7 \\ C_3 = i_5 \oplus i_6 \oplus i_7 \end{cases}$$





Base 10	Base 2
0	= 0 0 0
1	= 0 0 1
2	= 0 1 0
3	= 0 1 1
$4^{(10)}$	$= 1\,0\,0^{(2)}$
5	= 1 0 1
6	= 1 1 0
7	= 1 1 1





(Base 2) $z_1\ z_2\ z_3$

1 0 1 → 5

0 1 1 → 3

(Base 10) error position

z_1	z_2	z_3
1	1	1
×	×	×
4	2	1
2^2	2^1	2^0

$\longrightarrow$ $7 = z_1 \cdot 4 + z_2 \cdot 2 + z_3$

$b \oplus 1 \equiv$ the opposite of b