

# Single num 3

28 June 2023 19:15

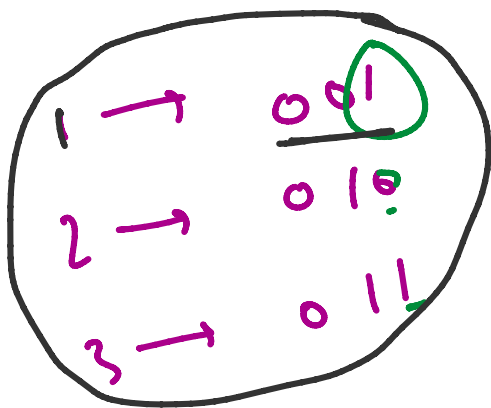
each no. flip twice except 2 numbers.

ex :-

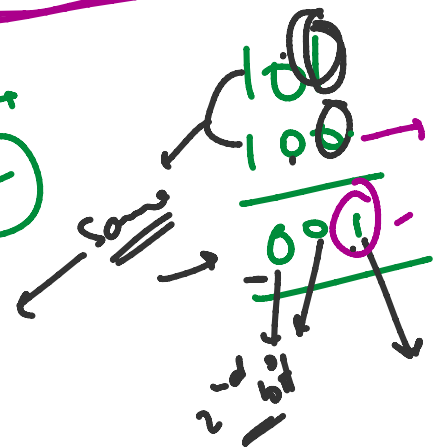
<sup>1 2 3 2 5 1 3 4</sup>  
(4, 5) →

appears once,  
rest twice.

$1 \oplus 2 \oplus 3 \oplus 2 \oplus 5 \oplus 1 \oplus 3 \oplus 4$   
 $1 \oplus 2 \oplus 3 \oplus 2 = 0$



either both  
0 or 1.



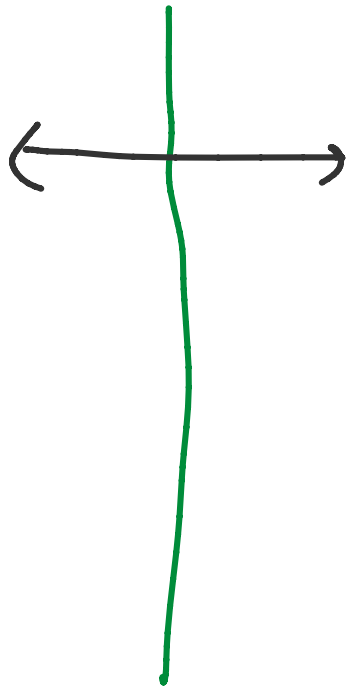
$0^{\text{th}}$  bit →

for any bit, each no. has only  $2$  choices,  
either that particular bit, will be set in  
that number or it will be not set.

8 1

$2^{31} \dots 2^1 \dots 2^0$   
1 1

set club  
 0<sup>th</sup> bit set  
 (1 → 1)  
 (2 → 2)  
 (5)

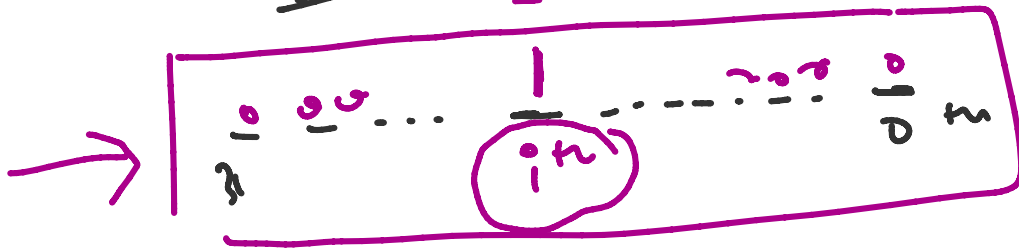


unset club  
 0<sup>th</sup> bit unset  
 (2 → 2)  
 (4)

i<sup>th</sup> bit diff.

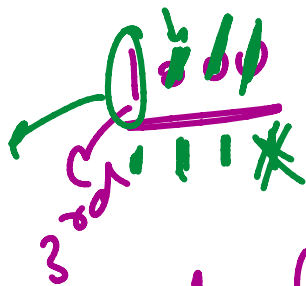
mask

i<sup>th</sup> bit set → Non zero



XOR =

(1)



while (xor)  
 { if (xor & 1)

at = 1 \* 2  
 (3)

```
9 if (n < 1)
    break;
    ct++;
    xor >= 1;
```