Q: Reorganize String - leetcode

Because we don't need to minimum the effort & return any string

→ we can take all given chars of string & then make one of our own.

aabaaacbb

a - 5
b - 3
c - 1

a b a b a b a c a
0 2 4 6 7

→ Bob → $x_i + y_i$

Alice → x_i

(x, y)

when Bob picks this in client:

$x_i + y_i + x_i$

→ Bob's score increases by $x_i + y_i$

→ Alice's score decreases by x_i

→ Gain → $2x_i + y_i$ ⟺ $O(n \log n)$

(x_1, y_1) (x_2, y_2) (x_3, y_3) ---------- (x_n, y_n)

Sort

$S_{Alice} \rightarrow \sum x_i - x'_1$ $\qquad$ $S_{Bob} + = x_i + y_i$

$S_{Bob} > S_{Alice}$

Bound

→ Xor Value – Hackerearth

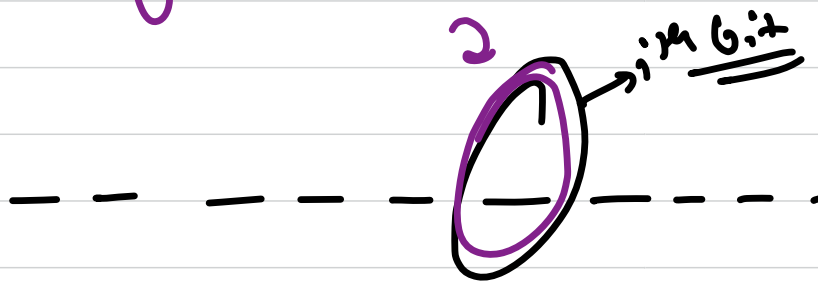
→ $a_i \leq 10^{18}$ → bits ≈ 60

min value of k to minimize $\Sigma a_i \wedge k$

your MSB
Should be less

for any i^{th} bit,

in $a_1 \dots a_n$



$a_1 \dots a_k$

n elements have i^{th} bit set

then $n-m$ will be not have it set

$n \rightarrow 1$

$n-m \rightarrow 0$

$(m) > (n-m)$

ith bit

$a, \wedge k$

m elements → ith bit — 1 → 0

n − m elements → ith bit — 0 → 1

$m > n - m$

$m \times 2^i > (n-m)\, 0$

$(n-m)\, 2^i$

great

$m > n-m$

$k^{th} \rightarrow 1$

$(n-m) > m$ → set

(arrow from $(n-m)$:) not set

$k^{th} \rightarrow 0$

i^{th} bit

_ _ _ _ _ _ _ _

$a_i \wedge K$

some elements will have i^{th} bit set

Some will not have it set.

assume m elements have i^{th} bit set

$\Rightarrow$ $n-m$ don't have it

$K \to i^{th} \to 1$

$1 \wedge 1 \to 0$

$1 \wedge 1 \to 0$

$1 \wedge 1$

$0 \wedge 1 \to 1$

$1 \to 0$

$0 \to 1$ $m \times 2^i$

$(n-m) \times 0 \to 0$

$(m) > (n-m)$

$m \times 2^i > (n-m)\, 2^i$] $\to$ better ans

$\rightarrow \underline{m} < \underline{n - m}$ ($m \rightarrow 1$, $n - m \rightarrow 0$)

$m \times 2^i < (n - m)\, 2^i$ → $\underline{\underline{0}}$

$k \rightarrow i^m \rightarrow \underline{\underline{0}}$

$1 \wedge 0 \rightarrow 1$

$0 \wedge 0 \rightarrow 0$

$101 \gg 2$ → $001 \,\&\, 1$ → 00

$101 \,\&\, (1 \ll 2)$ → $100 > 0$ → 00

$[5, 6) \rightarrow (101', 110']$

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$(1\times2^2 + 0\times2^1 + 1\times2^0) + 1\times2^2 + 1\times2^1 + 0\times2^0$

$(1+1)2^2 + (0+1)2^1 + (1+0)2^0$