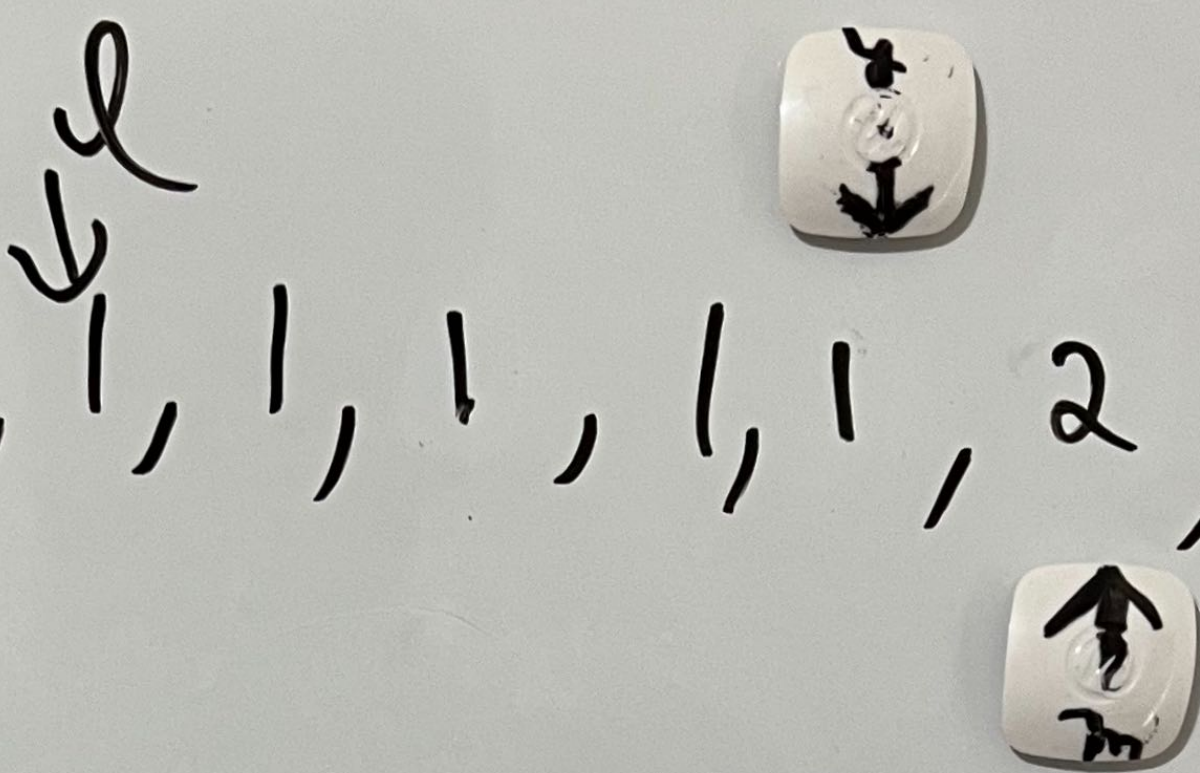


Sort Colors

[0, 0, 0, 1, 1, 1, 1, 1, 2, 2, 2]



zeros - 3

ones - 5

two - 3

Brute force - $n \log n$ - sort, $O(1)$

Rohit - $O(n)$

while (mid \leq high) :

if $n[mid] == 1$:

mid ++;

elif $n[mid] == 0$

Swap ($n[mid]$, $n[low]$)

low ++, mid ++

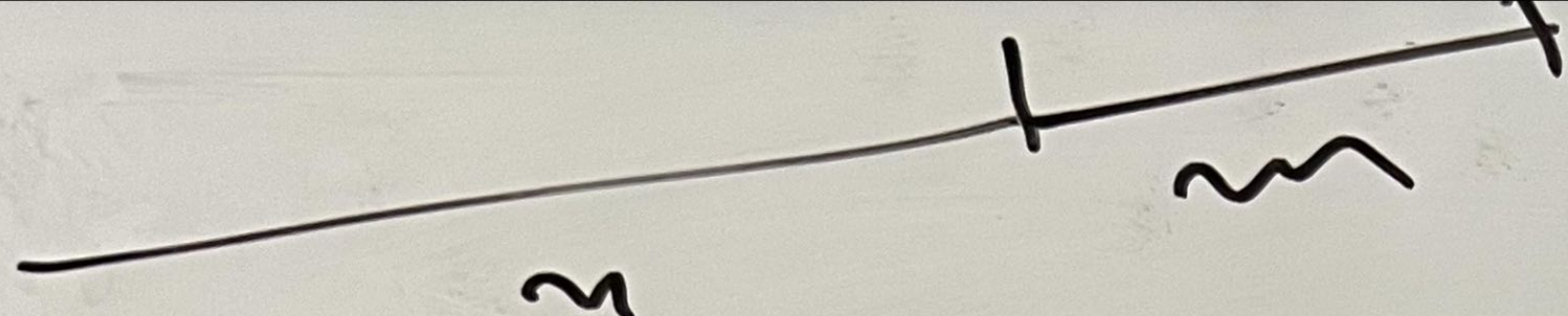
else

Swap ($n[mid]$, $n[high]$)
high --

$a = a + b$
 $b = a - b$
 $a = a - b$
 $a = 1$
 $b = 5$
 $a = 2$

$a = 1$
 $b = 2$

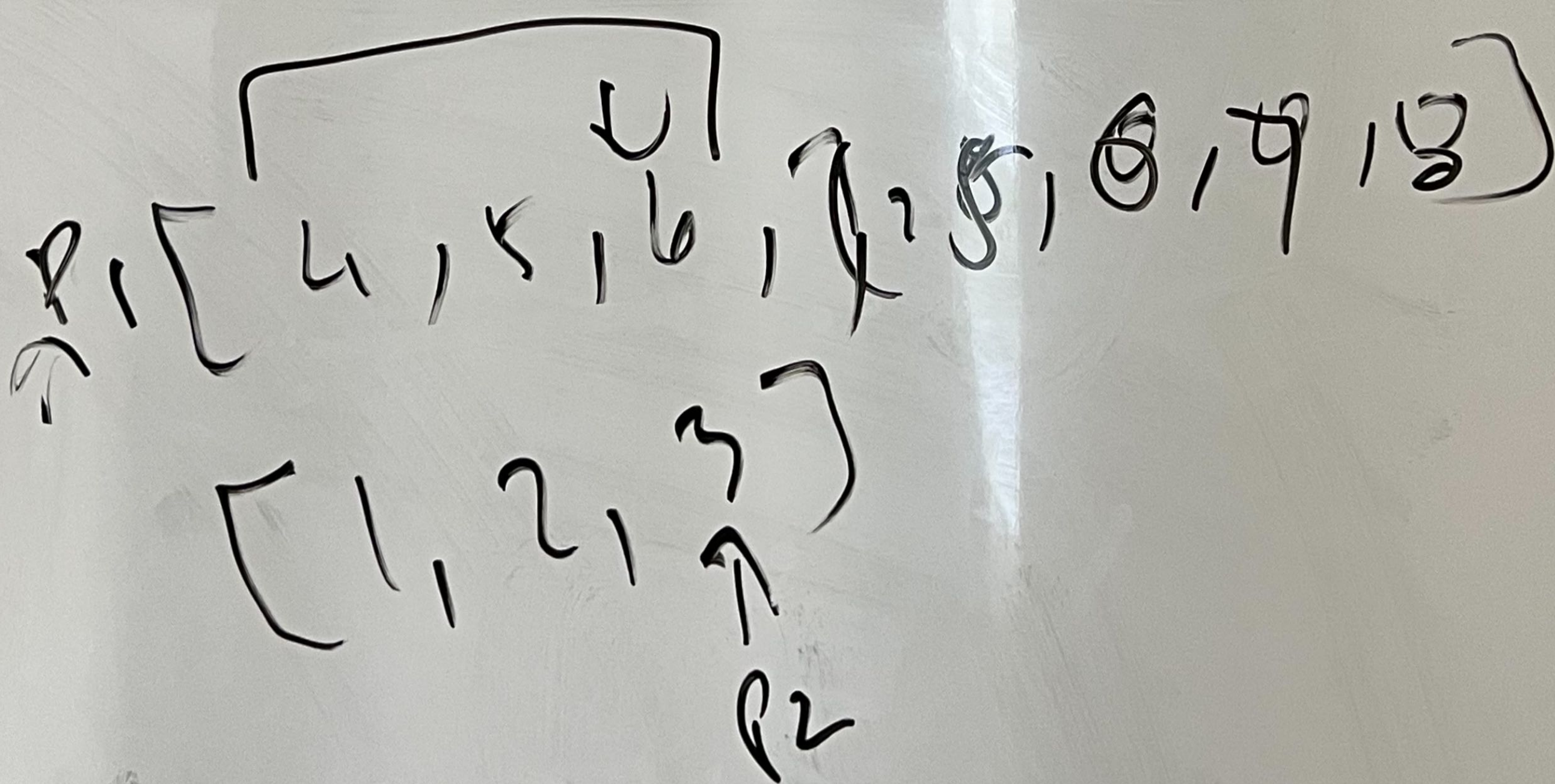
$x = a$
 $a = b$
 $b = x$



$$(n+m) \log(n+m)$$

Diagram showing the expression $(n+m) \log(n+m)$. Above the expression, the text $n \log n$ is written. An arrow points from the n in $n \log n$ to the n in $(n+m)$. Another arrow points from the $\log n$ in $n \log n$ to the $\log(n+m)$.

$$n_1[0:p_2+1] = n_2[0:p_2+1]$$



Merge Sorted Array

nums1 = [1, 2, 4, 4, 5, 8, 9]

nums2 = [4, 8, 9]

[1, 2, 3, 4, 5, 7, 8]

[1, 4, 8]

- Theorem -

- $O(m+n)$

$O(m+n \log(m+n))$