

3324. construct the Minimum Bitwise

3314. construct the Minimum Bitwise
Array I

→ Given integer array $nums$ consisting of n prime integers.

→ construct ans array of length n such that for each index i , the bitwise OR of

$ans[i]$ and $ans[i+1]$ is equal to $nums[i]$.

→ we must minimize each value of $ans[i]$ in resulting array.

→ if it is not possible to find such value for $ans[i]$, then $ans[i] = -1$.

Ex:-

Input: $nums = [2, 3, 5, 7]$

Output: $[-1, 1, 4, 3]$

$$\begin{array}{r} 110 \rightarrow 6 \\ 101 \rightarrow 5 \\ \hline 111 = 7 \end{array}$$

$$\begin{array}{r} 011 \rightarrow 3 \\ 100 \rightarrow 4 \\ \hline 111 = 7 \end{array} \rightarrow \text{min}$$

2 = 010
-1 = not possible

$$\begin{array}{r} 3 = 011 \\ \Downarrow \\ 1+2 \\ 001 \rightarrow 1 \\ 010 \rightarrow 2 \\ \hline 011 = 3 \end{array}$$

$$\begin{array}{r} 5 = 101 \\ \Downarrow \\ 100 \rightarrow 4 \\ 101 \rightarrow 5 \\ \hline 101 = 5 \end{array}$$

0	1	2	3
-1	1	4	3

2	3	5	7
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nums

→ constraints:

$$1 \leq \text{nums.length} \leq 100$$

we can go for brute force

(0) initialize Res vec.

`vector<int> res (n - 1);`

(1) // Traverse and fill values.

`for (int i = 0; i < n; i++) {`

`for (int val = 0; val <= nums[i]; val++) {`

`if ((val | (val + 1)) == nums[i]) {`

`res[i] = val;`

`break;`

`}`

`}`

`}`

`return res;`

T.C :- $O(n * \max(\text{nums}))$

S.C :- $O(n)$ // res vec.