

## Intuition

Since we need to form a permutation we can start from no elements and then each time we take a element we can see what further element can be taken to form permutation with it.

## Approach

Since we are exploring all possible permutation we will apply Dynamic Programming and BitMasking (for keeping visited track)

We will maintain a previous element so that at each point when we take a new element which was previously not taken we can satisfy the condition  $\text{nums}[i] \% \text{nums}[i + 1] == 0 \mid \mid \text{nums}[i + 1] \% \text{nums}[i] == 0$

To iterate over those elements which are previously not taken we will maintain mask.

Only taking value that satisfies the constraint:

For all indexes  $0 \leq i < n - 1$ , either  $\text{nums}[i] \% \text{nums}[i+1] == 0$  or  $\text{nums}[i+1] \% \text{nums}[i] == 0$

Using DP to store results of states based on the current bitmask and index of prev that was taken.

## Complexity

- Time complexity:

The overall time complexity of the code is  $O(N * 2^N * N)$

- Space complexity:

Since we are using the dp table space complexity goes up to  $O(14 + 1)(2^{\wedge} 14)$