

# Problem 2155: All Divisions With the Highest Score of a Binary Array

## Problem Information

**Difficulty:** Medium

**Acceptance Rate:** 65.09%

**Paid Only:** No

**Tags:** Array

## Problem Description

You are given a \*\*0-indexed\*\* binary array `nums` of length `n`. `nums` can be divided at index `i` (where `0 <= i <= n`) into two arrays (possibly empty) `numsleft` and `numsright`:

\* `numsleft` has all the elements of `nums` between index `0` and `i - 1` \*\*(inclusive)\*\* , while `numsright` has all the elements of `nums` between index `i` and `n - 1` \*\*(inclusive)\*\*. \* If `i == 0` , `numsleft` is \*\*empty\*\* , while `numsright` has all the elements of `nums` . \* If `i == n` , `numsleft` has all the elements of `nums` , while `numsright` is \*\*empty\*\*.

The \*\*division score\*\* of an index `i` is the \*\*sum\*\* of the number of `0`'s in `numsleft` and the number of `1`'s in `numsright` .

Return \_ \*\*all distinct indices\*\* that have the \*\*highest\*\* possible \*\*division score\*\*\_. You may return the answer in \*\*any order\*\*.

**Example 1:**

**Input:** nums = [0,0,1,0] **Output:** [2,4] **Explanation:** Division at index - 0: `numsleft` is []. `numsright` is [0,0,\_\*\*1\*\*\_,0]. The score is  $0 + 1 = 1$ . - 1: `numsleft` is [\_\*\*0\*\*\_]. `numsright` is [0,\_\*\*1\*\*\_,0]. The score is  $1 + 1 = 2$ . - 2: `numsleft` is [\_\*\*0\*\*\_ , \_\*\*0\*\*\_]. `numsright` is [\_\*\*1\*\*\_ , 0]. The score is  $2 + 1 = 3$ . - 3: `numsleft` is [\_\*\*0\*\*\_ , \_\*\*0\*\*\_ , 1]. `numsright` is [0]. The score is  $2 + 0 = 2$ . - 4: `numsleft` is [\_\*\*0\*\*\_ , \_\*\*0\*\*\_ , 1, \_\*\*0\*\*\_]. `numsright` is []. The score is  $3 + 0 = 3$ . Indices 2 and 4 both have the highest possible division score 3. Note the answer [4,2] would also be accepted.

**Example 2:**

**\*\*Input:\*\*** nums = [0,0,0] **\*\*Output:\*\*** [3] **\*\*Explanation:\*\*** Division at index - 0: numsleft is []. numsright is [0,0,0]. The score is  $0 + 0 = 0$ . - 1: numsleft is [ $\_^{**}0^{**}\_$ ]. numsright is [0,0]. The score is  $1 + 0 = 1$ . - 2: numsleft is [ $\_^{**}0^{**}\_$ ,  $\_^{**}0^{**}\_$ ]. numsright is [0]. The score is  $2 + 0 = 2$ . - 3: numsleft is [ $\_^{**}0^{**}\_$ ,  $\_^{**}0^{**}\_$ ,  $\_^{**}0^{**}\_$ ]. numsright is []. The score is  $3 + 0 = 3$ . Only index 3 has the highest possible division score 3.

**\*\*Example 3:\*\***

**\*\*Input:\*\*** nums = [1,1] **\*\*Output:\*\*** [0] **\*\*Explanation:\*\*** Division at index - 0: numsleft is []. numsright is [ $\_^{**}1^{**}\_$ ,  $\_^{**}1^{**}\_$ ]. The score is  $0 + 2 = 2$ . - 1: numsleft is [1]. numsright is [ $\_^{**}1^{**}\_$ ]. The score is  $0 + 1 = 1$ . - 2: numsleft is [1,1]. numsright is []. The score is  $0 + 0 = 0$ . Only index 0 has the highest possible division score 2.

**\*\*Constraints:\*\***

\* `n == nums.length` \* `1 <= n <= 105` \* `nums[i]` is either `0` or `1`.

## Code Snippets

**C++:**

```
class Solution {
public:
    vector<int> maxScoreIndices(vector<int>& nums) {
        ...
    }
};
```

**Java:**

```
class Solution {
    public List<Integer> maxScoreIndices(int[] nums) {
        ...
    }
}
```

**Python3:**

```
class Solution:
    def maxScoreIndices(self, nums: List[int]) -> List[int]:
```

