Count Maximum Consecutive One’s in the array

Problem Statement: Given an array that contains **only 1 and 0** return the count of **maximum consecutive** ones in the array.

Examples:

Example 1:

Input: prices = {1, 1, 0, 1, 1, 1}

Output: 3

Explanation: There are two consecutive 1’s and three consecutive 1’s in the array out of which maximum is 3.

Input: prices = {1, 0, 1, 1, 0, 1}

Output: 2

Explanation: There are two consecutive 1's in the array.

Solution:

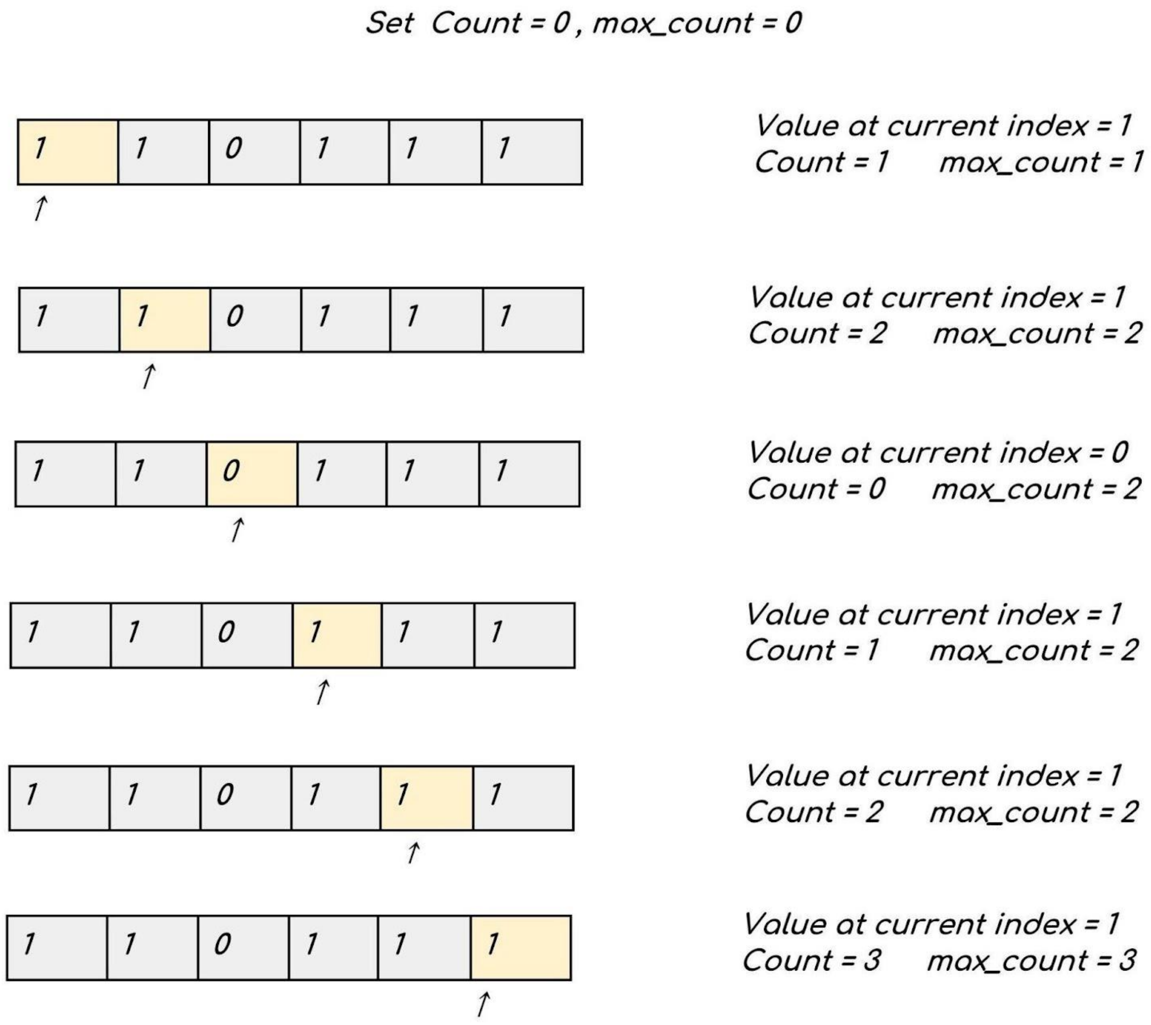
Disclaimer: *Don’t jump directly to the solution, try it out yourself first.*

Approach: We maintain a **variable count** that keeps a track of the number of consecutive 1’s while traversing the array. The other variable max_count maintains the maximum number of 1’s, in other words, it maintains the answer.

We start traversing from the beginning of the array. Since we can encounter either a 1 or 0 there can be two situations:-

1. If the value at the current index is equal to 1 we **increase the value of count by one.** After updating the count variable if it becomes **more** than the max_count **update the max_count.**
2. If the value at the current index is equal to zero we make the **variable count as 0** since there are **no more consecutive ones**.

See the illustration below for a better understanding


Set Count = 0 , max_count = 0
1 1 0 1 1 1
Value at current index = 1
Count = 1   max_count = 1
Value at current index = 1
Count = 2   max_count = 2
Value at current index = 0
Count = 0   max_count = 2
Value at current index = 1
Count = 1   max_count = 2
Value at current index = 1
Count = 2   max_count = 2
Value at current index = 1
Count = 3   max_count = 3

Code:

```
public int findMaxConsecutiveOnes(int[] nums) {

       int best=0;

        int currmax=0;

        for(int i=0;i<nums.length;i++)
        {
            if(nums[i]==1)
            {
                currmax++;
            }
            else
            {
                currmax=0;
            }
            best=Math.max(best,currmax);
        }
        return best;
    }
```

Time Complexity: O(N) since the solution involves only a single pass.

Space Complexity: O(1) because no extra space is used.