

To determine if a number has been skipped, check the last number of the array. For example, for an array containing a sequence of x consecutive positive integers starting with 1, if the last number is x , then no number is skipped. If the last number is $x-1$, then one number is skipped. Using Divide-and-conquer algorithm and above method, we can separate the array into two, named array starts from 1 A_1 and the other one A_2 . Apply the method to find out in which array a number is skipped. Then separate the array into two, named the arrays A_3 and A_4 . Apply the method and separate again. One application and separation halve the array size. So, after n times, we are supposed to get two consecutive numbers. In fact, we would only get one. The missed one is the number been skipped. $O(n)$