

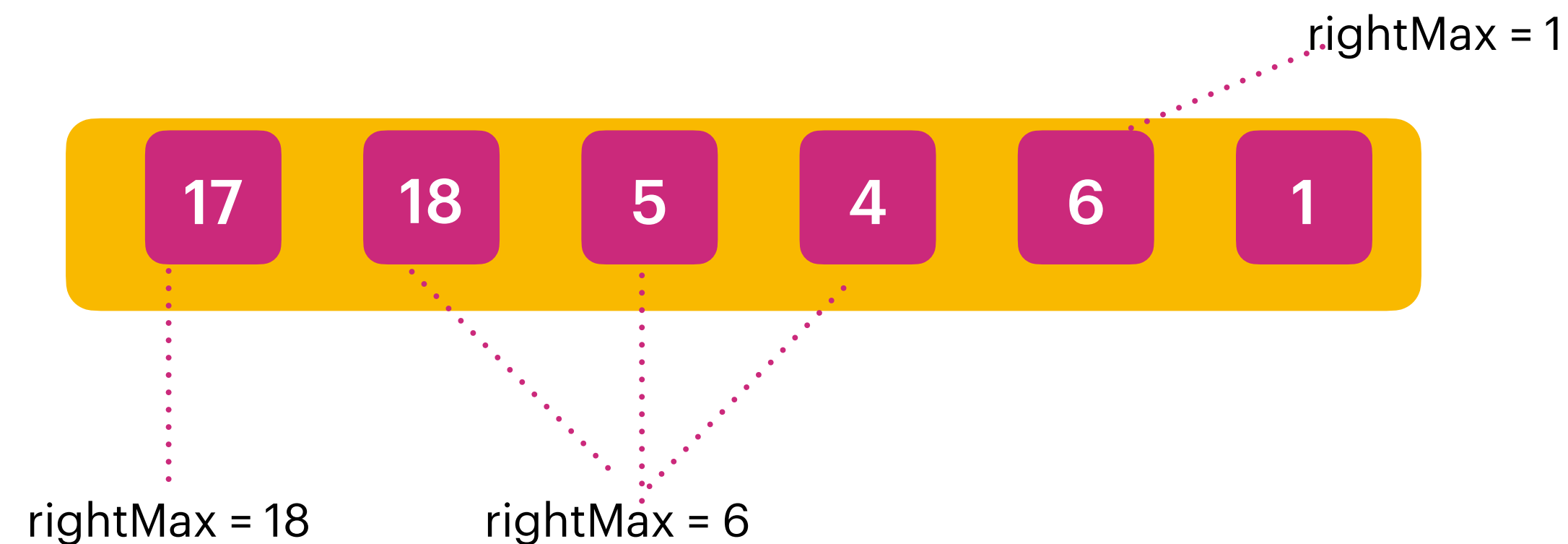
## Replace Elements with Greatest Element on Right Side !!!

Given an array arr, replace every element in that array with the greatest element among the elements to its right, and replace the last element with -1.

After doing so, return the array.

Input: arr = [17,18,5,4,6,1]

Output: [18,6,6,6,1,-1]



## Move Zeroes !!!

Given an integer array `nums`, move all 0's to the end of it while maintaining the relative order of the non-zero elements.

Note that you must do this in-place without making a copy of the array.

Input: `nums = [0,1,0,3,12]`

Output: `[1,3,12,0,0]`

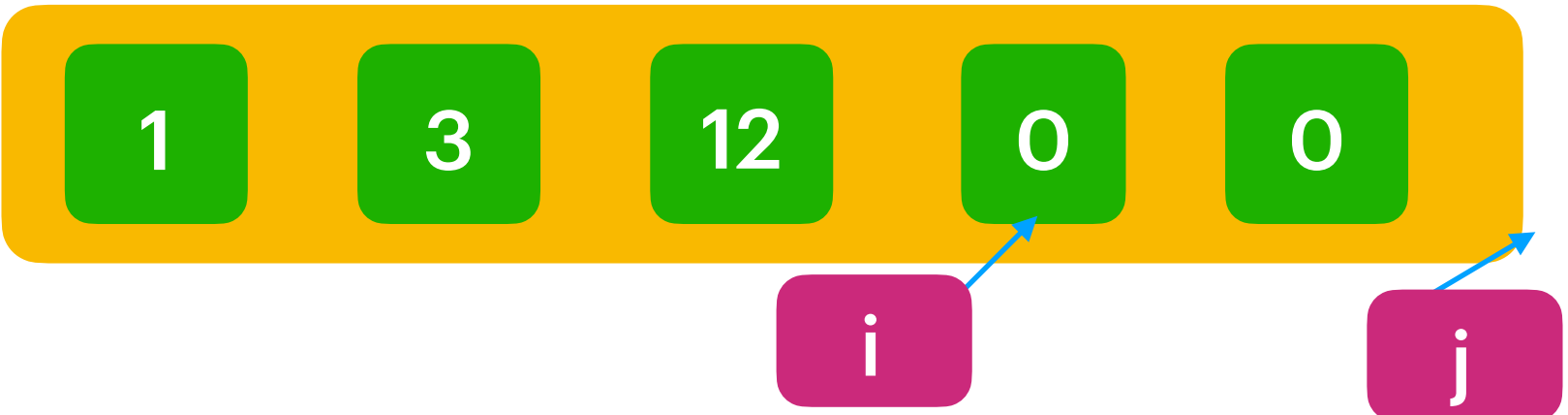
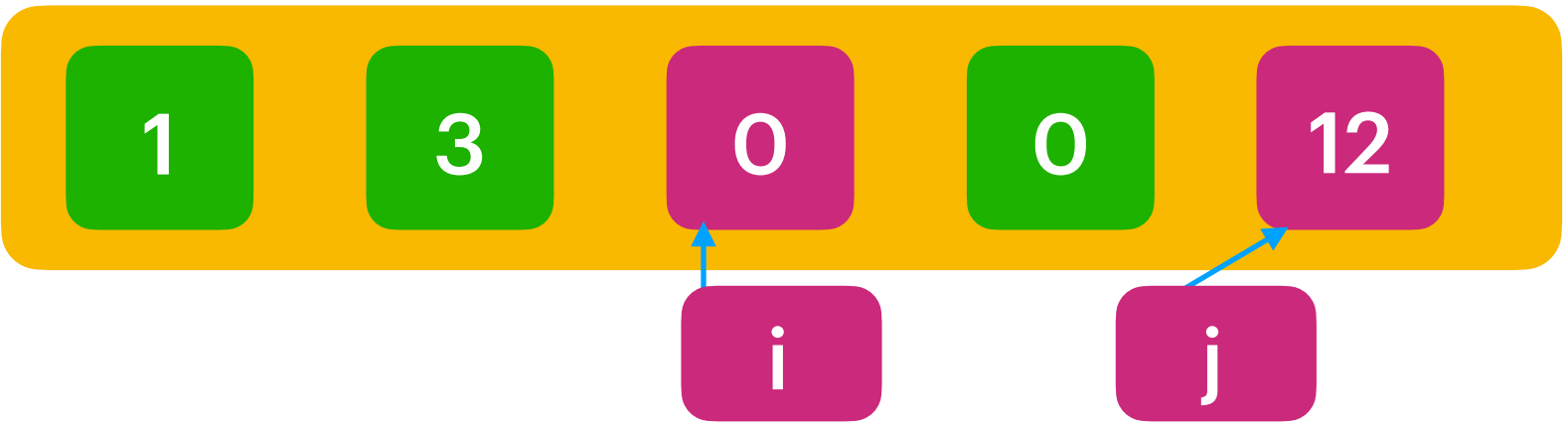
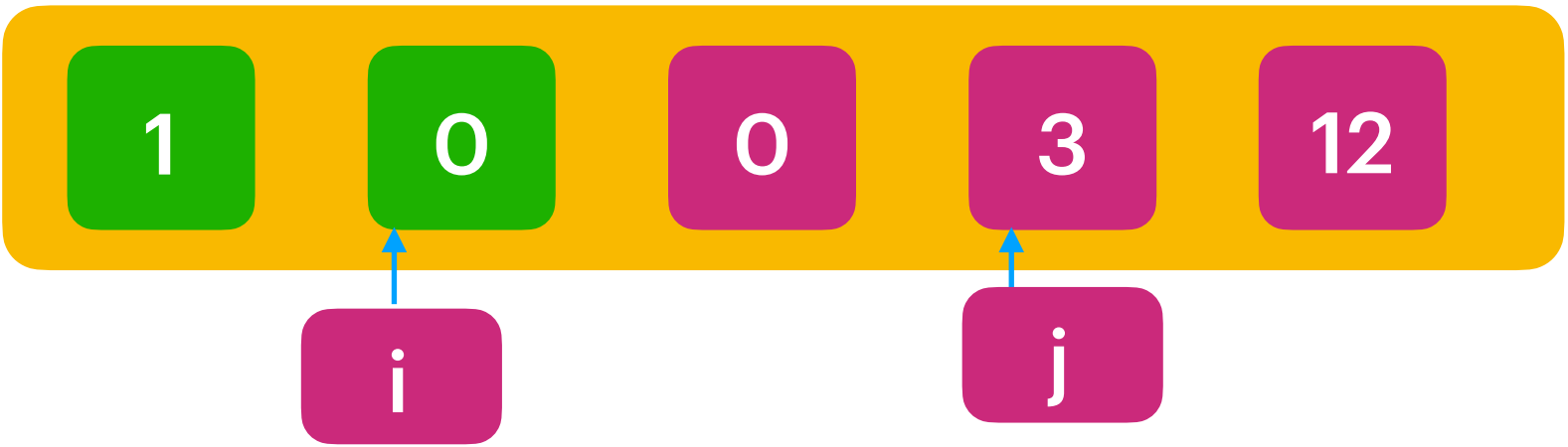
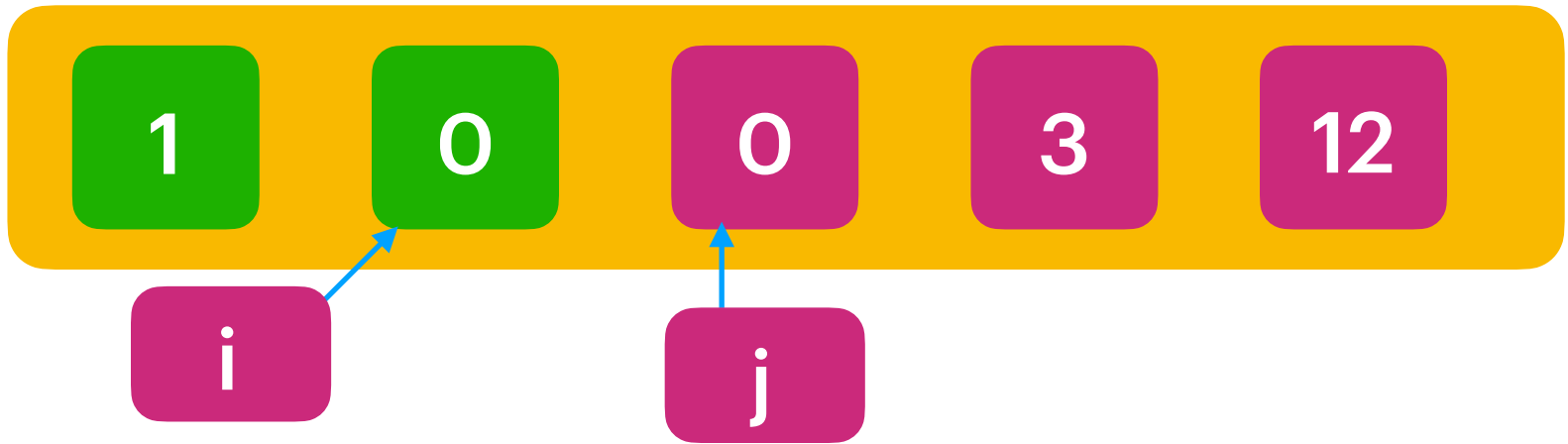
Input: `nums = [1,2,3]`

Output: `[1,2,3]`

when  $\text{arr}[j] \neq 0$  then swap  $i, j$ .

Move  $i$  to right only when there is a swap

Move  $j$  to right till  $n-1$  also do swap when  $\text{arr}[j] \neq 0$ .



## Find All Numbers Disappeared in an Array:

Given an array `nums` of `n` integers where `nums[i]` is in the range `[1, n]`, return an array of all the integers in the range `[1, n]` that do not appear in `nums`.

Input: `nums = [4,3,2,7,8,2,3,1]`

Output: `[5,6]`

Input: `nums = [1,1]`

Output: `[2]`



When the numbers are 1 to `n` then always we can represent value `n` with `n-1` index in an array.

At index 3 & 4 elements are positive so {4,5} are missing !!!



Count even Digits in a Array ( Apply Math) hint :  $\log_{10}(\text{value})$

Given an array nums of integers, return how many of them contain an even number of digits.

Input: nums = [12,345,2,6,7896]

Output: 2

Explanation:

12 contains 2 digits (even number of digits).

345 contains 3 digits (odd number of digits).

2 contains 1 digit (odd number of digits).

6 contains 1 digit (odd number of digits).

7896 contains 4 digits (even number of digits).

Therefore only 12 and 7896 contain an even number of digits.

## Lets understand the pattern logarithms

$$2^5 = 32$$

growth of rate

Number of times

Result

$$\log_2(16) = 4$$

$$\log_2(34) = 5.000123$$

$$\log_{10}(100) = 2$$

$$\log_{10}(999) = 2.999$$

$$\log_{10}(1000) = 3$$

$$\log_{10}(9999) = 3.9999$$

```
/*  
When digit is odd then logValue with base10  
would be even Integer,  
(Don't consider decimal)  
log10(100) .... log10(999) = 2 to... 2.99999  
*/
```

```
/*  
When digit is even then logValue with base10  
would be odd Integer,  
(Don't consider decimal)  
log10(1000) ..... log10(9999) = 3 to...  
3.99999  
*/
```