

→ $\begin{bmatrix} 1 & 3 & 12 \\ 0 & x & \emptyset & 3 & 12 \\ x & x & x & x & x & i \\ k & k & k & k \end{bmatrix}$

$[1, 3, 12, 0, 0]$

$k = \text{index - non-zero}$

$i = \text{pickup element from } 0^{\text{th}} \text{ index to } n-1$

$\begin{bmatrix} 1 & 3 & 12 & 0 & 0 \\ 0 & x & \emptyset & 3 & 12 \\ x & x & x & x & x & i \\ k & k & k & k < n \\ & & & & k \end{bmatrix}$

$k = 0$
 $i = 0$

$0! = 0$
 $1! = 0$
 $0! = 0$
 $3! = 0$
 $12! = 0$

$k = 0$

```
for (i = 0; i < nums.length; i++) {
    if (nums[i] != 0) {
        nums[k] = nums[i];
        k++;
    }
}
```

```
while (k < nums.length) {
    nums[k] = 0;
    k++;
}
```

$\begin{bmatrix} 12 & 3 & 0 & 0 \\ \emptyset & 1 & \emptyset & x & 12 \\ x & x & x & k & x \\ k \end{bmatrix}$

$\begin{bmatrix} 1 & 3 & 12 & 0 & 0 \\ 0 & x & \emptyset & 3 & 12 \\ x & x & x & x & x & i \\ k & k & k & k \end{bmatrix}$

$[3, 2, 2, 3]$

$val = 3$

$[3, 2, 2, 3]$
 $[2, 2]$

val = 3

$[2, 2]$
 $[3, 2, 2, 3]$
 $[2, 3]$
 $[2, 3]$
 $[2, 3]$
 $[2, 3]$

val = 3

$[1, 2, 3, 1]$

$[1, 2, 2, 3]$ 0
 $[1, 2, 2, 3]$

Arrays.sort(nums)

```

for (i=0; i<nums.length; i++) {
    if (nums[i] == nums[i+1]) {
        return true
    }
}

```

return false