

## Arrays

(Assignment Questions)

### (EASY)

**Question 1** : Given an integer array `nums`, return true if any value appears at least twice in the array, and return false if every element is distinct. [\[link\]](#)

*Examples :*

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

*Output: `false`*

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

*Output: `true`*

### (MEDIUM)

**Question 2** : There is an integer array `nums` sorted in ascending order (with distinct values).

Prior to being passed to your function, `nums` is possibly rotated at an unknown pivot index `k` ( $1 \leq k < \text{nums.length}$ ) such that the resulting array is `[nums[k], nums[k+1], ..., nums[n-1], nums[0], nums[1], ..., nums[k-1]]` (0-indexed). For example, `[0,1,2,4,5,6,7]` might be rotated at pivot index 3 and become `[4,5,6,7,0,1,2]`.

Given the array `nums` after the possible rotation and an integer `target`, return the index of `target` if it is in `nums`, or -1 if it is not in `nums`.

You must write an algorithm with  $O(\log n)$  runtime complexity. [\[link\]](#)

*Examples :*

*Input: `nums = [4,5,6,7,0,1,2]`, `target = 0`*

*Output: `4`*

*Input: `nums = [4,5,6,7,0,1,2]`, `target = 3`*

*Output: `-1`*

**(MEDIUM)**

**Question 3** : Given an integer array `nums`, find a subarray that has the largest product, and return the product. The test cases are generated so that the answer will fit in a 32-bit integer. [\[link\]](#)

**Note** - This Qs might feel difficult as a beginner because it uses DP approach.

*Examples :*

*Input:* `nums = [2,3,-2,4]`

*Output:* 6

*Explanation:* `[2,3]` has the largest product 6.

*Input:* `intervals = nums = [-2,0,-1]`

*Output:* 0

*Explanation:* The result cannot be 2, because `[-2,-1]` is not a subarray.

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