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 <= k < 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.