

## Day 3

### 1. Search in sorted rotated array **[Medium]**

<https://interviewprep.appliedroots.com/lecture/2/interview-preparation-course/1006/search-in-rotated-sorted-array/18/module-5-problem-solving>

### 2. Sort colors **[Medium]** **[Microsoft, Amazon, Facebook, Adobe]**

<https://interviewprep.appliedroots.com/lecture/2/interview-preparation-course/1007/sort-colors/18/module-5-problem-solving>

### 3. Inversion in an array **[Hard]** **[Flipkart, Amazon, Microsoft, Adobe, BankBazaar, Myntra]**

<https://interviewprep.appliedroots.com/lecture/2/interview-preparation-course/1012/inversions-in-an-array/18/module-5-problem-solving>

### 4. Increasing Triplet sequence **[Medium]** **[Google, Amazon, Bloomberg]**

<https://interviewprep.appliedroots.com/lecture/2/interview-preparation-course/1019/increasing-triplet-subsequence/18/module-5-problem-solving>

### 5. Partition equal subset sum **[Easy]**

<https://interviewprep.appliedroots.com/lecture/2/interview-preparation-course/1031/partition-equal-subset-sum/18/module-5-problem-solving>

## Practice Problems

1. There is an integer array `nums` sorted in ascending order (with distinct values).

Prior to being passed to your function, `nums` is rotated at an unknown pivot index  $k$  ( $0 \leq k < \text{nums.length}$ ) 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 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.

**[Medium] [Amazon, Facebook, LinkedIn, Microsoft, Apple, Oracle, Expedia, Adobe]**

Practice Link: <https://leetcode.com/problems/search-in-rotated-sorted-array/>

2. You are given an integer array `nums` of length  $n$  which represents a permutation of all the integers in the range  $[0, n - 1]$ .

The number of global inversions is the number of the different pairs  $(i, j)$  where:

- $0 \leq i < j < n$
- $\text{nums}[i] > \text{nums}[j]$

The number of local inversions is the number of indices  $i$  where:

- $0 \leq i < n - 1$
- $\text{nums}[i] > \text{nums}[i + 1]$

Return true if the number of global inversions is equal to the number of local inversions. **[Medium] [Amazon, Bloomberg, Yahoo]**

Practice link: <https://leetcode.com/problems/global-and-local-inversions/>

3. Given a non-empty array `nums` containing only positive integers, find if the array can be partitioned into two subsets such that the sum of elements in both subsets is equal. **[Medium] [Amazon, Facebook, Microsoft, Expedia]**

Practice link: <https://leetcode.com/problems/partition-equal-subset-sum/>