

Given a sorted array of distinct integers and a target value, return the index if the target is found. If not, return the index where it would be if it were inserted in order.

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

Example 1:

Input: `nums = [1,3,5,6]`, `target = 5`

Output: 2

Example 2:

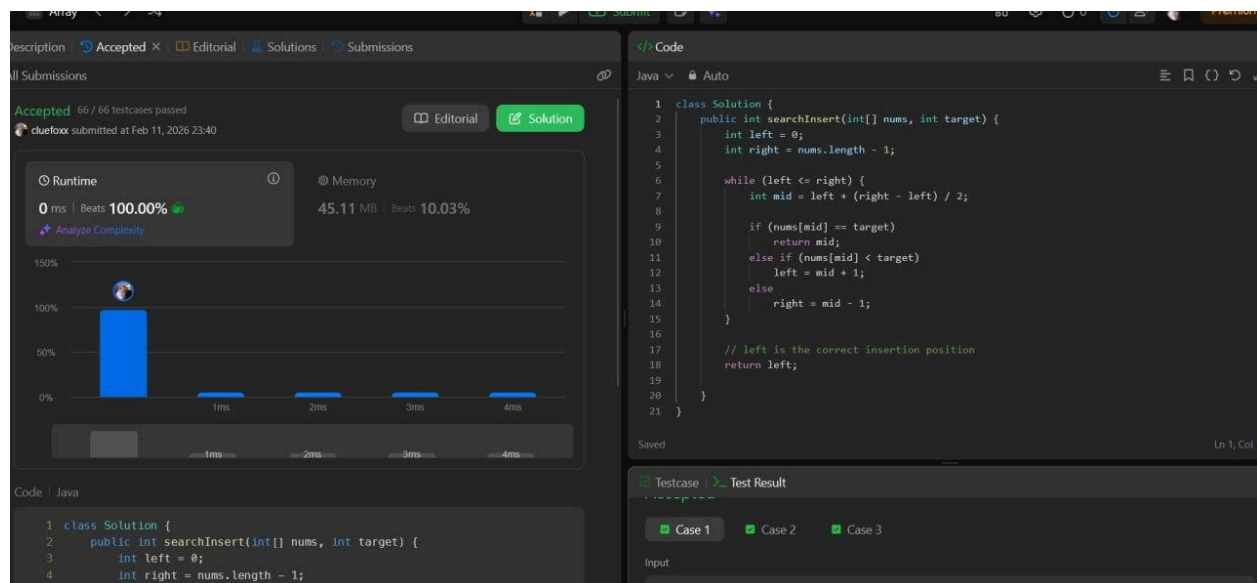
Input: `nums = [1,3,5,6]`, `target = 2`

Output: 1

Example 3:

Input: `nums = [1,3,5,6]`, `target = 7`

Output: 4



Given an array of distinct integers candidates and a target integer target, return a list of all unique combinations of candidates where the chosen numbers sum to target. You may return the combinations in any order.

The same number may be chosen from candidates an unlimited number of times.

Two combinations are unique if the frequency of at least one of the chosen numbers is different.

The test cases are generated such that the number of unique combinations that sum up to target is less than 150 combinations for the given input.

Example 1:

Input: candidates = [2,3,6,7], target = 7

Output: [[2,2,3],[7]]

Explanation:

2 and 3 are candidates, and $2 + 2 + 3 = 7$. Note that 2 can be used multiple times.

7 is a candidate, and $7 = 7$.

These are the only two combinations.

Example 2:

Input: candidates = [2,3,5], target = 8

Output: [[2,2,2,2],[2,3,3],[3,5]]

Example 3:

Input: candidates = [2], target = 1

Output: []

The screenshot displays a LeetCode submission page for the "Combination Sum" problem. The submission is marked as "Accepted" with 160/160 test cases passed. The runtime is 2 ms, beating 95.11% of solutions, and the memory usage is 45.74 MB, beating 67.67%. A bar chart shows the runtime distribution, with the majority of submissions falling between 1ms and 3ms. The code is written in Java and uses a recursive backtracking approach. The test result section shows three test cases, all of which are passed.

Submissions

Accepted 160 / 160 testcases passed
cluefox submitted at Feb 11, 2026 23:48

Runtime 2 ms | Beats 95.11%
Memory 45.74 MB | Beats 67.67%

Code | Java

```
1 import java.util.*;
2
3 class Solution {
4     public List<List<Integer>> combinationSum(int[] candidates, int target) {
5         List<List<Integer>> result = new ArrayList<>();
6         backtrack(candidates, target, 0, new ArrayList<>(), result);
7         return result;
8     }
9
10    private void backtrack(int[] candidates, int target, int start,
11                           List<Integer> current, List<List<Integer>> result) {
12
13        // Base case
14        if (target == 0) {
15            result.add(new ArrayList<>(current));
16            return;
17        }
18
19        if (target < 0) {
20            return;
21        }
22    }
```

Testcase | Test Result

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Given a collection of candidate numbers (`candidates`) and a target number (`target`), find all unique combinations in `candidates` where the candidate numbers sum to `target`. Each number in `candidates` may only be used once in the combination.

Note: The solution set must not contain duplicate combinations.

Example 1:

Input: `candidates = [10,1,2,7,6,1,5]`, `target = 8`

Output:

```
[
  [1,1,6],
  [1,2,5],
  [1,7],
  [2,6]
]
```

Example 2:

Input: `candidates = [2,5,2,1,2]`, `target = 5`

Output:

```
[
  [1,2,2],
  [5]
]
```

The screenshot shows the LeetCode interface for problem 40, "Combination Sum II". The problem description states: "Given a collection of candidate numbers (`candidates`) and a target number (`target`), find all unique combinations in `candidates` where the candidate numbers sum to `target`. Each number in `candidates` may only be used **once** in the combination. Note: The solution set must not contain duplicate combinations."

Example 1:
Input: `candidates = [10,1,2,7,6,1,5]`, `target = 8`
Output:

```
[
  [1,1,6],
  [1,2,5],
  [1,7],
  [2,6]
]
```

Example 2:
Input: `candidates = [2,5,2,1,2]`, `target = 5`
Output:

```
[
  [1,2,2],
  [5]
]
```

The code editor on the right shows a Java solution using backtracking:

```
1 import java.util.*;
2
3 class Solution {
4     public List<List<Integer>> combinationSum2(int[] candidates, int target) {
5         List<List<Integer>> result = new ArrayList<>();
6
7         Arrays.sort(candidates); // Step 1: Sort
8
9         backtrack(candidates, target, 0, new ArrayList<>(), result);
10
11         return result;
12     }
13
14     private void backtrack(int[] candidates, int target, int start,
15                           List<Integer> current, List<List<Integer>> result) {
16
17         // Base Case
18         if (target == 0) {
19             result.add(new ArrayList<>(current));
20             return;
21         }
22     }
```

The bottom of the screenshot shows the test results: "Accepted Runtime: 1 ms" with two test cases, "Case 1" and "Case 2", both marked as passed.

You are given a 0-indexed array of integers `nums` of length `n`. You are initially positioned at index 0.

Each element `nums[i]` represents the maximum length of a forward jump from index `i`.

In other words, if you are at index `i`, you can jump to any index `(i + j)` where:

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

Return the minimum number of jumps to reach index `n - 1`. The test cases are generated such that you can reach index `n - 1`.

Example 1:

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

Output: 2

Explanation: The minimum number of jumps to reach the last index is 2. Jump 1 step from index 0 to 1, then 3 steps to the last index.

Example 2:

Input: `nums = [2,3,0,1,4]`

Output: 2

Link: <https://leetcode.com/problems/jump-game-ii/description/?envType=problem-list-v2&envId=array>

The screenshot shows the LeetCode interface for problem 45, "Jump Game II". The problem description on the left states: "You are given a 0-indexed array of integers `nums` of length `n`. You are initially positioned at index 0. Each element `nums[i]` represents the maximum length of a forward jump from index `i`. In other words, if you are at index `i`, you can jump to any index `(i + j)` where:

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

 Return the minimum number of jumps to reach index `n - 1`. The test cases are generated such that you can reach index `n - 1`." It includes two examples: Example 1 with input `[2,3,1,1,4]` and output 2, and Example 2 with input `[2,3,0,1,4]` and output 2. The right side of the screenshot shows a Java solution in a code editor. The code is as follows:

```
1 class Solution {
2     public int jump(int[] nums) {
3         int jumps = 0;
4         int currentEnd = 0;
5         int farthest = 0;
6
7         for (int i = 0; i < nums.length - 1; i++) {
8
9             farthest = Math.max(farthest, i + nums[i]);
10
11             if (i == currentEnd) {
12                 jumps++;
13                 currentEnd = farthest;
14             }
15         }
16
17         return jumps;
18     }
19 }
20
```

Below the code editor, the "Testcase" tab is selected, showing "Accepted" with a runtime of 0 ms. Two test cases are listed: "Case 1" and "Case 2", both of which are passed.

Given an array of strings `strs`, group the anagrams together. You can return the answer in any order.

Example 1:

Input: `strs = ["eat","tea","tan","ate","nat","bat"]`

Output: `[["bat"],["nat","tan"],["ate","eat","tea"]]`

Explanation:

- There is no string in `strs` that can be rearranged to form "bat".
- The strings "nat" and "tan" are anagrams as they can be rearranged to form each other.
- The strings "ate", "eat", and "tea" are anagrams as they can be rearranged to form each other.

Example 2:

Input: `strs = [""]`

Output: `[[""]]`

Example 3:

Input: `strs = ["a"]`

Output: `[["a"]]`

The screenshot shows a LeetCode problem page for "49. Group Anagrams". The problem description states: "Given an array of strings `strs`, group the anagrams together. You can return the answer in any order." It includes three examples: Example 1 with input `["eat","tea","tan","ate","nat","bat"]` and output `[["bat"],["nat","tan"],["ate","eat","tea"]]`; Example 2 with input `[""]` and output `[[""]]`; and Example 3 with input `["a"]` and output `[["a"]]`. The explanation for Example 1 is provided. A Java solution is shown in the "Code" editor, which uses a `HashMap` to group anagrams by their sorted character keys. The solution is marked as "Solved" and "Accepted" with a runtime of 1 ms. The test cases are all passed.

49. Group Anagrams Solved

Medium Topics Companies

Given an array of strings `strs`, group the anagrams together. You can return the answer in any order.

Example 1:

Input: `strs = ["eat","tea","tan","ate","nat","bat"]`

Output: `[["bat"],["nat","tan"],["ate","eat","tea"]]`

Explanation:

- There is no string in `strs` that can be rearranged to form "bat".
- The strings "nat" and "tan" are anagrams as they can be rearranged to form each other.
- The strings "ate", "eat", and "tea" are anagrams as they can be rearranged to form each other.

Example 2:

Input: `strs = [""]`

Output: `[[""]]`

Example 3:

Input: `strs = ["a"]`

```
1 class Solution {
2     public List<List<String>> groupAnagrams(String[] strs) {
3         Map<String, List<String>> map = new HashMap<>();
4
5         // Step 2: Traverse each string
6         for (String s : strs) {
7
8             // Convert to char array and sort
9             char[] chars = s.toCharArray();
10            Arrays.sort(chars);
11
12            // Convert back to string (key)
13            String key = new String(chars);
14
15            // Step 3: Insert into map
16            if (!map.containsKey(key)) {
17                map.put(key, new ArrayList<>());
18            }
19
20            map.get(key).add(s);
21        }
22    }
23 }
```

Accepted Runtime: 1 ms

Case 1 Case 2 Case 3

You are given a large integer represented as an integer array `digits`, where each `digits[i]` is the i th digit of the integer. The digits are ordered from most significant to least significant in left-to-right order. The large integer does not contain any leading 0's.

Increment the large integer by one and return the resulting array of digits.

Example 1:

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

Output: `[1,2,4]`

Explanation: The array represents the integer 123.

Incrementing by one gives $123 + 1 = 124$.

Thus, the result should be `[1,2,4]`.

Example 2:

Input: `digits = [4,3,2,1]`

Output: `[4,3,2,2]`

Explanation: The array represents the integer 4321.

Incrementing by one gives $4321 + 1 = 4322$.

Thus, the result should be `[4,3,2,2]`.

Example 3:

Input: `digits = [9]`

Output: `[1,0]`

Explanation: The array represents the integer 9.

Incrementing by one gives $9 + 1 = 10$.

Thus, the result should be `[1,0]`.

The screenshot shows the LeetCode interface for problem 66, 'Plus One'. The left sidebar contains the problem description, examples, and a '11.7K' view count. The main area displays the problem details, including the input/output for three examples and the explanation. The right sidebar shows the 'Code' editor with a Java solution and a 'Test Result' section indicating 'Accepted' status with a runtime of 0 ms.

66. Plus One

Easy Topics Companies

You are given a **large integer** represented as an integer array `digits`, where each `digits[i]` is the i th digit of the integer. The digits are ordered from most significant to least significant in left-to-right order. The large integer does not contain any leading 0's.

Increment the large integer by one and return the resulting array of digits.

Example 1:

Input: `digits = [1,2,3]`
Output: `[1,2,4]`
Explanation: The array represents the integer 123.
Incrementing by one gives $123 + 1 = 124$.
Thus, the result should be `[1,2,4]`.

Example 2:

Input: `digits = [4,3,2,1]`
Output: `[4,3,2,2]`
Explanation: The array represents the integer 4321.
Incrementing by one gives $4321 + 1 = 4322$.
Thus, the result should be `[4,3,2,2]`.

Example 3:

Input: `digits = [9]`
Output: `[1,0]`
Explanation: The array represents the integer 9.
Incrementing by one gives $9 + 1 = 10$.
Thus, the result should be `[1,0]`.

Code

```
public int[] plusOne(int[] digits) {
    for (int i = digits.length - 1; i >= 0; i--) {
        if (digits[i] < 9) {
            digits[i]++;
            return digits; // No carry needed
        }
        digits[i] = 0; // If digit is 9, make it 0
    }

    // If all digits were 9
    int[] result = new int[digits.length + 1];
    result[0] = 1;
    return result;
}
```

Testcase **Test Result**

Accepted Runtime: 0 ms

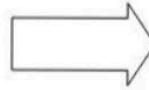
Case 1 Case 2 Case 3

Input

Given an $m \times n$ integer matrix `matrix`, if an element is 0, set its entire row and column to 0's.
You must do it [in place](#).

Example 1:

1	1	1
1	0	1
1	1	1

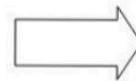


1	0
0	0
1	0

Input: `matrix = [[1,1,1],[1,0,1],[1,1,1]]`
Output: `[[1,0,1],[0,0,0],[1,0,1]]`

Example 2:

0	1	2	0
3	4	5	2
1	3	1	5



0	0
0	4
0	3

Input: `matrix = [[0,1,2,0],[3,4,5,2],[1,3,1,5]]`
Output: `[[0,0,0,0],[0,4,5,0],[0,3,1,0]]`

Link: <https://leetcode.com/problems/set-matrix-zeroes/description/?envType=problem-list-v2&envId=array>

Take
Home
e

73. Set Matrix Zeroes

Medium

Topics Companies Hint

Given an $m \times n$ integer matrix `matrix`, if an element is 0, set its entire row and column to 0's.
You must do it [in place](#).

Example 1:

1	1	1		1	0	1
1	0	1		0	0	0
1	1	1		1	0	1

Input: `matrix = [[1,1,1],[1,0,1],[1,1,1]]`
Output: `[[1,0,1],[0,0,0],[1,0,1]]`

Example 2:

0	1	2	0		0	0	0	0
3	4	5	2		0	4	5	0

Code

```

39         matrix[i][j] = 0;
40     }
41 }
42 }
43
44 // Zero out first row if needed
45 if (firstRowZero) {
46     for (int j = 0; j < cols; j++) {
47         matrix[0][j] = 0;
48     }
49 }
50
51 // Zero out first column if needed
52 if (firstColZero) {
53     for (int i = 0; i < rows; i++) {
54         matrix[i][0] = 0;
55     }
56 }
57 }
58 }
59

```

Accepted Runtime: 0 ms

Case 1 Case 2

You are given an $m \times n$ integer matrix `matrix` with the following two properties:

- Each row is sorted in non-decreasing order.
- The first integer of each row is greater than the last integer of the previous row.

Given an integer `target`, return `true` if `target` is in `matrix` or `false` otherwise.

You must write a solution in $O(\log(m * n))$ time complexity.

74. Search a 2D Matrix

Medium Topics Companies

You are given an $m \times n$ integer matrix `matrix` with the following two properties:

- Each row is sorted in non-decreasing order.
- The first integer of each row is greater than the last integer of the previous row.

Given an integer `target`, return `true` if `target` is in `matrix` or `false` otherwise.

You must write a solution in $O(\log(m * n))$ time complexity.

Example 1:

1	3	5	7
10	11	16	20
23	30	34	60

```
11 while (left <= right) {
12     int mid = left + (right - left) / 2;
13
14     int row = mid / n;
15     int col = mid % n;
16
17     if (matrix[row][col] == target) {
18         return true;
19     }
20     else if (matrix[row][col] < target) {
21         left = mid + 1;
22     }
23     else {
24         right = mid - 1;
25     }
26 }
27
28 return false;
29 }
30
31
```

Accepted Runtime: 0 ms

Case 1 Case 2

Example 1:

1	3	5	7
10	11	16	20
23	30	34	60

Input: matrix = [[1,3,5,7],[10,11,16,20],[23,30,34,60]], target = 3

Output: true

Example 2:

1	3	5	7
10	11	16	20
23	30	34	60

Input: matrix = [[1,3,5,7],[10,11,16,20],[23,30,34,60]], target = 13

Output: false

Given an array `nums` with `n` objects colored red, white, or blue, sort them in-place so that objects of the same color are adjacent, with the colors in the order red, white, and blue.

We will use the integers 0, 1, and 2 to represent the color red, white, and blue, respectively.

You must solve this problem without using the library's sort function.

Example 1:

Input: `nums = [2,0,2,1,1,0]`

Output: `[0,0,1,1,2,2]`

Example 2:

Input: `nums = [2,0,1]`

Output: `[0,1,2]`

The screenshot shows the LeetCode interface for the problem "75. Sort Colors". The left sidebar contains the problem description, which states: "Given an array `nums` with `n` objects colored red, white, or blue, sort them in-place so that objects of the same color are adjacent, with the colors in the order red, white, and blue. We will use the integers 0, 1, and 2 to represent the color red, white, and blue, respectively. You must solve this problem without using the library's sort function." It also includes two examples: Example 1 with input `nums = [2,0,2,1,1,0]` and output `[0,0,1,1,2,2]`, and Example 2 with input `nums = [2,0,1]` and output `[0,1,2]`. The constraints are listed as `n == nums.length` and `1 <= n <= 300`. The right sidebar shows the "Code" editor with a Java solution using a three-pointer approach (low, mid, high). The code is as follows:

```
6 while (mid <= high) {
7     if (nums[mid] == 0) {
8         int temp = nums[low];
9         nums[low] = nums[mid];
10        nums[mid] = temp;
11        low++;
12        mid++;
13    }
14    else if (nums[mid] == 1) {
15        mid++;
16    }
17    else { // nums[mid] == 2
18        int temp = nums[mid];
19        nums[mid] = nums[high];
20        nums[high] = temp;
21        high--;
22    }
23 }
24 }
25 }
26 }
```

Below the code editor, the "Testcase" tab is selected, showing "Accepted" status with a runtime of 0 ms. Two test cases are listed: "Case 1" and "Case 2".

Given an integer array `nums` of unique elements, return all possible subsets (the power set).

The solution set must not contain duplicate subsets. Return the solution in any order.

Example 1:

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

Output: `[[], [1], [2], [1,2], [3], [1,3], [2,3], [1,2,3]]`

Example 2:

Input: `nums = [0]`

Output: `[[], [0]]`

78. Subsets

Medium

Given an integer array `nums` of **unique** elements, return *all possible subsets (the power set)*.

The solution set **must not** contain duplicate subsets. Return the solution in **any order**.

Example 1:

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

Example 2:

Input: `nums = [0]`
Output: `[[], [0]]`

Constraints:

- `1 <= nums.length <= 10`
- `-10 <= nums[i] <= 10`
- All the numbers of `nums` are **unique**.

```
Java
private void backtrack(int[] nums, int index, List<Integer> current, List<List<Integer>> result) {
    // Add the current subset
    result.add(new ArrayList<>(current));

    // Generate all subsets starting from index
    for (int i = index; i < nums.length; i++) {
        // Include nums[i]
        current.add(nums[i]);

        // Recurse with next index
        backtrack(nums, i + 1, current, result);

        // Backtrack: remove last element
        current.remove(current.size() - 1);
    }
}
```

Accepted Runtime: 0 ms

Case 1 Case 2

Given an $m \times n$ grid of characters `board` and a string `word`, return `true` if `word` exists in the grid.

The word can be constructed from letters of sequentially adjacent cells, where adjacent cells are horizontally or vertically neighboring. The same letter cell may not be used more than once.

Example 1:

Input: `board = [["A","B","C","E"],["S","F","C","S"],["A","D","E","E"]]`, `word =`

79. Word Search

Medium

Given an $m \times n$ grid of characters `board` and a string `word`, return `true` if `word` exists in the grid.

The word can be constructed from letters of sequentially adjacent cells, where adjacent cells are horizontally or vertically neighboring. The same letter cell may not be used more than once.

Example 1:

A	B	C	E
S	F	C	S
A	D	E	E

Input: `board = [["A","B","C","E"],["S","F","C","S"],["A","D","E","E"]]`, `word = "ABCCED"`

Output: `true`

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```

Given an array `nums` of `n` integers, return an array of all the unique quadruplets `[nums[a], nums[b], nums[c], nums[d]]` such that:

- $0 \leq a, b, c, d < n$
- `a`, `b`, `c`, and `d` are distinct.
- `nums[a] + nums[b] + nums[c] + nums[d] == target`

You may return the answer in any order.

Example 1:

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

Output: `[[-2,-1,1,2],[-2,0,0,2],[-1,0,0,1]]`

Example 2:

Input: `nums = [2,2,2,2,2]`, `target = 8`

Output: `[[2,2,2,2]]`

The screenshot shows the LeetCode interface for problem 18, "4Sum". The problem description states: "Given an array `nums` of `n` integers, return an array of all the **unique quadruplets** `[nums[a], nums[b], nums[c], nums[d]]` such that:

- $0 \leq a, b, c, d < n$
- `a`, `b`, `c`, and `d` are **distinct**.
- `nums[a] + nums[b] + nums[c] + nums[d] == target`

 You may return the answer in **any order**."

Example 1:
Input: `nums = [1,0,-1,0,-2,2]`, `target = 0`
Output: `[[-2,-1,1,2],[-2,0,0,2],[-1,0,0,1]]`

Example 2:
Input: `nums = [2,2,2,2,2]`, `target = 8`
Output: `[[2,2,2,2]]`

Constraints:
• $1 \leq n \leq 5000$
• $-10^9 \leq \text{nums}[i] \leq 10^9$
• $-10^8 \leq \text{target} \leq 10^8$

The Java solution on the right is as follows:

```
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```

Testcase Test Result
Accepted Runtime: 1 ms
Case 1 Case 2

There is an integer array `nums` sorted in ascending order (with distinct values). Prior to being passed to your function, `nums` is possibly left rotated at an unknown 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 left rotated by 3 indices 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.

Example 1:

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

Output: 4

Example 2:

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

Output: -1

Example 3:

Input: `nums = [1]`, `target = 0`

Output: -1

33. Search in Rotated Sorted Array

Medium Topics Companies

There is an integer array `nums` sorted in ascending order (with distinct values). Prior to being passed to your function, `nums` is possibly left rotated at an unknown 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 left rotated by 3 indices 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.

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

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

Example 3:
Input: `nums = [1]`, `target = 0`
Output: -1

```
Java
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if (target >= nums[left] && target < nums[mid]) {
    right = mid - 1;
} else {
    left = mid + 1;
}
// Else right part is sorted
else {
    // Check whether target is in the right sorted half
    if (target > nums[mid] && target <= nums[right]) {
        left = mid + 1;
    } else {
        right = mid - 1;
    }
}
return -1; // not found
}
```

Accepted Runtime: 0 ms
Case 1 Case 2 Case 3

Given an array of integers `nums` sorted in non-decreasing order, find the starting and ending position of a given target value.

If target is not found in the array, return `[-1, -1]`.

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

Example 1:

Input: `nums = [5,7,7,8,8,10]`, `target = 8`

Output: `[3,4]`

Example 2:

Input: `nums = [5,7,7,8,8,10]`, `target = 6`

Output: `[-1,-1]`

Example 3

Input: `nums = []`, `target = 0`

Output: `[-1,-1]`

The screenshot shows a LeetCode problem page for "34. Find First and Last Position of Element in Sorted Array". The problem description states: "Given an array of integers `nums` sorted in non-decreasing order, find the starting and ending position of a given `target` value. If `target` is not found in the array, return `[-1, -1]`. You must write an algorithm with $O(\log n)$ runtime complexity."

Three examples are provided:

- Example 1: Input: `nums = [5,7,7,8,8,10]`, `target = 8`; Output: `[3,4]`
- Example 2: Input: `nums = [5,7,7,8,8,10]`, `target = 6`; Output: `[-1,-1]`
- Example 3: Input: `nums = []`, `target = 0`; Output: `[-1,-1]`

The solution code is written in Java and uses a binary search approach to find the first and last positions of the target. The code is as follows:

```
18     return result;  
19     }  
20  
21     result[0] = left;  
22  
23     // Find last position  
24     right = nums.length - 1;  
25     while (left <= right) {  
26         int mid = left + (right - left) / 2;  
27         if (nums[mid] <= target) {  
28             left = mid + 1;  
29         } else {  
30             right = mid - 1;  
31         }  
32     }  
33  
34     result[1] = right;  
35     return result;  
36 }  
37  
38
```

The test results show that the solution is "Accepted" with a runtime of 0 ms. All three test cases (Case 1, Case 2, Case 3) are passed.