

## Valid Palindrome

For this problem we need to check if a string is a palindrome after:

1. Lowercasing
2. Removing non-alphanumeric characters

### Approach: Two Pointers:

- Steps:
1. Use two indices:  $left = 0$ ,  $right = s.length() - 1$ .
  2. While  $left < right$ :
    - Skip non-alphanumeric characters.
    - Compare lowercase characters at left and right.
    - If mismatch  $\rightarrow$  return false.
  3. Return true.

### Complexity:

- Time:  $O(n)$  (single scan)
- Space:  $O(1)$  (in place check)