Next Permutation

In this problem we must rearrange numbers into the next lexicographically greater sequence (or smallest if none exist). It's a classic algorithm used in permutation generation.

Steps:

1. Find the first decreasing element from right to left
   - Scan nums from the end to find index i such that nums[i] < nums[i+1].
   - If no such index exist (array is entirely non-increasing), reverse the whole array.
2. Find the next greater element to swap with nums[i].
   - Again scan from right to left to find index j such that nums[j] > nums[i].
3. Swap nums[i] and nums[j].
   - This ensures we move to the next larger permutation.
4. Reverse the suffix after i:
   - Sort (or reverse since it's already decreasing) the part after i to get the smallest lexicographical order.

Complexity:

- Time: O(n) (single pass + reverse)
- Space: O(1) (in-place)