Documentation

The summaryRanges function is designed to solve the problem of summarizing ranges in a sorted array of unique integers. Given an input array nums, the task is to return a list of strings representing the smallest number of continuous ranges that fully cover all the elements in the array without missing any integer. Each range is represented as either a single number (for individual elements) or in the format "a->b" (for continuous sequences from a to b).

The function begins by handling an edge case: if the input array is empty, it immediately returns an empty list. This prevents unnecessary processing when no elements exist in the input.

For non-empty arrays, the function initializes a variable start to mark the beginning of the first range and then iterates through the array. During the iteration, the function checks if the current number is consecutive to the previous one. If the numbers are not consecutive, it signifies the end of a range, and the function determines whether it is a single-element range or a multi-element range. A single-element range is represented as just the number itself (e.g., "7"), while a multi-element range is formatted as "a->b" (e.g., "2->4").

Once a range is identified, it is added to a list that stores the result. The function continues iterating through the array, updating the start of the next range whenever a break in continuity is found. After the loop completes, there is a final check to handle the last range or single element since it may not have been added during the iteration.

In summary, the function effectively processes the input by identifying continuous segments and converting them into the appropriate string format. It ensures that every number is covered without any gaps or overlaps in the ranges. The overall time complexity of the function is O(n), where n is the length of the input array, as the function only traverses the array once. The result is a list of strings that succinctly represent the summary of ranges for the given input.