Maximum Subarray

For this problem the task is to find the contiguous subarray with the largest sum.

Approach 1: Kadane's Algorithm (O(n) Time, O(1) Space):

Idea: · Iterate through the array, keeping:
- current_sum: max subarray sum ending at current index
- max_sum: global max sum found so far.

· At each element:
- current_sum = max(nums[i], current_sum + nums[i])
- max_sum = max(max_sum, current_sum)

Complexity: · Time : O(n)
- Space: O(1)

Approach 2: Divide and Conquer (O(n log n) Time):

Idea: · Split array into two halves:

· Max subarray sum is either:

1. In the left half
2. In the right half
3. Crosses the middle (max left suffix + max right prefix).