Assignment 3

Team Number: 23

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Algorithm: We iterate on the array elements from 1 to n and calculate running max, max sum, running min and current min on each index i. The final answer is max(max sum, total array sum-min sum).

running_max = max(running_max+arr[i], arr[i])

max_sum=max(max_sum, running_sum)

running_min=min(running_min+arr[i], arr[i])

min_sum=min(min_sum, running_sum)

Max sum on any index i stores the maximum sum of any subarray (non-circular) till that index and similarly min sum stores the minimum sum of any subarray till that index. Running max stores the maximum sum of a subarray ending at that index and running min stores the minimum sum of subarrays ending at that index.

Finally, after iterating over all elements, we consider two cases: when the subarray can be a linear one and when it can be circular (non-linear circular). When we consider linear subarrays, its sum is in max sum and when we consider circular ones (non-linear circular) too, we basically remove a linear subarray from the total array and to get the max sum circular subarray, we subtract the sum of min sum subarray from total sum. The answer is the maximum one out of the two cases