

## Max Subarray

In this lab assignment, your job is to implement the  $O(n \log n)$  time divide-and-conquer algorithm for the MAX SUBARRAY PROBLEM; for the pseudo-code, see page 72 in the textbook. Recall that in the problem, we are given as input an array  $A[1 \cdots n]$  of  $n$  integers, and would like to find  $i^*$  and  $j^*$  ( $1 \leq i^* \leq j^* \leq n$ ) such that  $A[i^*] + A[i^* + 1] + \cdots + A[j^*]$  is maximized.

**Input structure** The input starts with an integer number  $n$ , which indicates the array size. Then, the integers,  $A[1], A[2], \dots, A[n]$ , follow, one per line.

**Output structure** Output the sum of integers in the max subarray, i.e.,  $A[i^*] + A[i^* + 1] + \cdots + A[j^*]$ .