Max Subarray

In this lab assignment, your job is to implement the $\Theta(n \log n)$ 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, $A[1], A[2], \cdots, A[n]$, follow, one per line.

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