Problem A. Array Division

Time limit 1000 ms
Mem limit 524288 kB

You are given an array containing n positive integers.

Your task is to divide the array into k subarrays so that the maximum sum in a subarray is as small as possible.

Input

The first input line contains two integers n and k: the size of the array and the number of subarrays in the division.

The next line contains n integers $x_1, x_2, \ldots, x_n$: the contents of the array.

Output

Print one integer: the maximum sum in a subarray in the optimal division.

Constraints

- $1 \leq n \leq 2 \cdot 10^5$
- $1 \leq k \leq n$
- $1 \leq x_i \leq 10^9$

Explanation: An optimal division is $[2, 4]$, $[7]$, $[3, 5]$ where the sums of the subarrays are $6, 7, 8$. The largest sum is the last sum 8.

Sample

Input	Output
5 3 2 4 7 3 5	8