Task 3: `Feast`

Gug is preparing a feast for his friends. The feast consists of N plates of food arranged in a single row, with the ith plate from the left giving A_i points of satisfaction if eaten. As some plates of food might be rotten, it is possible that A_i is negative.

There are a total of K people involved in the feast, and each person will be assigned a consecutive segment of plates to consume. This segment can possibly be empty. The segments of two people cannot overlap, as food cannot be eaten twice. Gug wishes to assign the plates to his friends such that the sum of satisfaction points of all the plates of food consumed is maximised.

Input

Your program must read from standard input.

The input starts with a line with two integers N and K.

The next line will contain N integers $A_1, \ldots, A_N$.

Output

Your program must print to standard output.

The output should contain a single integer on a single line, the sum of satisfaction points in an optimal assignment.

Subtasks

The maximum execution time on each instance is 1.0s. For all testcases, the input will satisfy the following bounds:

- $1 \leq K \leq N \leq 3 * 10^5$
- $0 \leq |A_i| \leq 10^9$

Your program will be tested on input instances that satisfy the following restrictions:

Subtask	Marks	Additional Constraints
1	4	$A_i \geq 0$
2	8	There will be at most one position where $A_i < 0$.
3	18	$K = 1$
4	10	$1 \leq K \leq N \leq 80$
5	11	$1 \leq K \leq N \leq 300$
6	20	$1 \leq K \leq N \leq 2000$
7	29	-

Sample Testcase 1

This testcase is valid for subtasks 3, 4, 5, 6 and 7.

Input	Output
`6 1` `1 -2 3 -1 5 -6`	`7`

Sample Testcase 1 Explanation

It is optimal to assign the only person to the segment `[3, -1, 5]`.

Sample Testcase 2

This testcase is valid for subtasks 2, 4, 5, 6 and 7.

Input	Output
`6 2` `1 2 3 -10 5 6`	`17`

Sample Testcase 2 Explanation

Picking the consecutive segments `[1, 2, 3]` and `[5, 6]` is the most optimal solution.

Sample Testcase 3

This testcase is valid for subtasks 4, 5, 6 and 7.

Input	Output
6 4 -1 -2 -1 0 -5 -1	0

Sample Testcase 3 Explanation

As all the satisfaction points are non-positive, it is optimal to choose empty segments for all four people.