Problem E. K blocks

Input file:	`blocks.in`
Output file:	`blocks.out`
Time limit:	1 second
Memory limit:	256 megabytes
Feedback	`subtask points only`
Grading system	`only full solution for subtask receives points`

You are given a sequence A of N positive integers. Let's define "value of a splitting" the sequence to K blocks as a sum of maximums in each of K blocks. For given K find the minimal possible value of splittings.

Input

First line of the input file contains two integers N and K. Next line contains N integers $A_1, A_2, \ldots, A_N$ ($1 \le A_i \le 10^6$) — the sequence elements.

Output

Output one number — minimal possible value of a splittings.

Examples

blocks.in	blocks.out
5 1 1 2 3 4 5	5
5 2 1 2 3 4 5	6

Note

Subtask 1 — $1 \le N \le 100$, $1 \le K \le min(N, 5)$, 14 points.

Subtask 2 — $1 \le N \le 20$, $1 \le K \le min(N, 20)$, 18 points.

Subtask 3 — $1 \le N \le 100$, $1 \le K \le min(N, 100)$, 21 points.

Subtask 4 — $1 \le N \le 100000$, $1 \le K \le min(N, 100)$, 47 points.