

Problem F. SplitXDD

Time limit 2000 ms
Memory limit 256MB

Problem Description

In the mystical land of Arithmos, you are a master jeweler tasked with processing a rare strip of raw crystal ore. The ore is composed of n segments fused together in a line, where the i -th segment has an internal energy level of a_i .

To make the crystal usable for magical enchantments, you can cut the entire strip into several smaller contiguous pieces.

The crystal strip must be partitioned such that every segment belongs to exactly one piece.

However, the process is delicate:

1. **Stability Requirement:** Due to the instability of the crystal, every cut piece must have a length of at least L .
2. **Processing Cost:** The cost of processing a single cut piece is determined by its peak energy multiplied by its size. Specifically, if a piece contains segments from index i to j (inclusive), its processing cost is:

$$\text{Cost}(i, j) = \max(a_i, a_{i+1}, \dots, a_j) \times (j - i + 1)$$

Your goal is to partition the entire crystal strip into valid pieces such that the total processing cost is minimized.

Input format

The first line contains two integers n and L ($1 \leq L \leq n \leq 10^5$), representing the total length of the crystal strip and the minimum required length for each cut piece.

The second line contains n space-separated integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 50$), representing the energy levels of the segments.

Output format

Output a single integer representing the minimum total processing cost to partition the entire strip.

Subtask score

Subtask	Score	Additional Constraints
0	0	Sample testcases
1	30	$1 \leq n \leq 5000$
2	70	No additional constraints

Sample

Sample Input 1

```
6 3
5 4 1 2 3 2
```

Sample Output 1

```
24
```

Sample Input 2

```
5 2
1 2 3 4 5
```

Sample Output 2

```
19
```