Problem 3 Playing with Cubes

Nikhil and Lavanya have a large stack of cubes, each with an integer written on it. They also have a nice little box. They play a game with this stack of cubes and the box as follows.

Nikhil and Lavanya play alternately, with Nikhil playing first. A move for Nikhil consists of picking up atleast 1 and at most M consecutive cubes from the top of the stack and putting them in the box. A move for Lavanya consists of picking up at least 1 and at most M consecutive cubes from the top of the stack and discarding them.

The game ends when no more cubes are left in the stack. At the end of the game the score is the sum of all the numbers in the box. Nikhil's aim is to maximise the score and Lavanya wants to minimise the score.

Assuming that Nikhil and Lavanya are smart enough that they can play optimally (i.e. play in a manner that results in the best possible result from their point of view), find the score at the end of the game.

Input format

The first line of input has two space separated integers, N and M. The next N lines of input contain the numbers on the cubes in the stack from bottom to top: line $i+1$ has the i^{th} number from the bottom.

Output format

The output should consist of a single line with a single integer, the score obtained at the end of the game assuming Nikhil and Lavanya play optimally.

Test Data

You may assume that $1 \leq N \leq 10^6$, $1 \leq M \leq 10^5$, $M \leq N$ and that every number written on the cubes is in the range $[-10^9, 10^9]$.

In test cases worth at least 30% of the points, $1 \leq N \leq 2000$. In test cases worth at least 70% of the points, $1 \leq N \leq 10^5$.

Time and memory limits

The time limit for this task is 0.7 seconds. The memory limit is 76 MB (actual limit 64 MB, plus 12 MB buffer for 64-bit compilation)

Sample input	Sample output
`5 2` `5 3 -4 7 -8`	`4`