Estimation

"There are too many numbers here!" your boss bellows. "How am I supposed to make sense of all of this? Pare it down! Estimate!"

You are disappointed. It took a lot of work to generate those numbers. But, you'll do what your boss asks.

You decide to estimate in the following way: You have an array A of numbers. You will partition it into k contiguous sections, which won't necessarily be of the same size. Then, you'll use a single number to estimate an entire section. In other words, for your array A of size n, you want to create another array B of size n, which has k contiguous sections. If i and j are in the same section, then $B[i] = B[j]$. You want to minimize the error, expressed as the sum of the absolute values of the differences $\sum |A[i] - B[i]|$.

Input

There will be a single test case in the input. This test case will begin with two integers on a line, n ($1 \leq n \leq 2\,000$) and k ($1 \leq k \leq 25$, $k \leq n$), where n is the size of the array, and k is the number of contiguous sections to use in estimation. The array A will be on the next n lines, one integer per line. Each integer element of A will be in the range from $-10\,000$ to $10\,000$, inclusive.

Output

Output a single integer on its own line, which is the minimum error you can achieve. All possible inputs yield answers which will fit in a signed 64-bit integer.

Sample Input 1	Sample Output 1
7 2 6 5 4 3 2 1 7	9