Angry Children 2



Problem Statement

Bill Gates is on one of his philanthropic journeys to a village in Utopia. He has **N** packets of candies and would like to distribute one packet to each of the **K** children in the village (each packet may contain different number of candies). To avoid a fight between the children, he would like to pick **K** out of **N** packets such that the unfairness is minimized.

Suppose the **K** packets have $(x_1, x_2, x_3,...,x_k)$ candies in them, where x_i denotes the number of candies in the ith packet, then we define *unfairness* as

$$\sum_{1 \le i < j \le k} |X_i - X_j|$$

where \|a\| denotes the absolute value of a.

Input Format

The first line contains an integer N.

The second line contains an integer K.

N lines follow each integer containing the candy in the ith packet.

Output Format

A single integer which will be minimum unfairness.

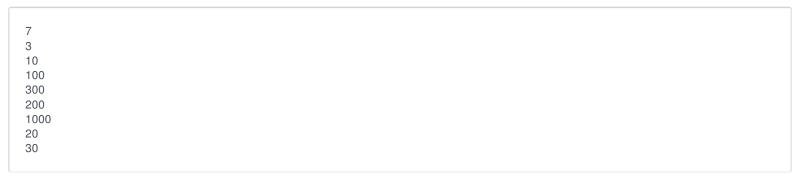
Constraints

 $2 <= N <= 10^5$

2<=K<=N

 $0 \le \text{number of candies in each packet} \le 10^9$

Sample Input #00



Sample Output #00

40

Explanation #00

Bill Gates will choose packets having 10, 20 and 30 candies. So unfairness will be |10-20| + |20-30| + |10-30| = 40. We can verify that it will be minimum in this way.

Sample Input #01

10	
4	
1	



Sample Output #01

10

Explanation #01

Bill Gates will choose 4 packets having 1,2,3 and 4 candies. So, unfairness will be |1-2| + |1-3| + |1-4| + |2-3| + |2-4| + |3-4| = 10