

Bill Gates is on one of his philanthropic journeys to a village in Utopia. He has brought a box of packets of candies and would like to distribute one packet to each of the children. Each of the packets contains a number of candies. He wants to minimize the cumulative difference in the number of candies in the packets he hands out. This is called the *unfairness sum*. Determine the minimum unfairness sum achievable.

For example, he brings  $n = 7$  packets where the number of candies is  $\mathbf{packets} = [3, 3, 4, 5, 7, 9, 10]$ . There are  $\mathbf{k} = 3$  children. The minimum difference between all packets can be had with  $\mathbf{3, 3, 4}$  from indices  $\mathbf{0, 1}$  and  $\mathbf{2}$ . We must get the difference in the following pairs:  $\{(0, 1), (0, 2), (1, 2)\}$ . We calculate the *unfairness sum* as:

| packets | candies | indices      | difference      | result |
|---------|---------|--------------|-----------------|--------|
| 0       | 3       |              |                 |        |
| 1       | 3       | (0,1), (0,2) | $ 3-3  +  3-4 $ | 1      |
| 2       | 4       | (1,2)        | $ 3-4 $         | 1      |

Total = 2

### Function Description

Complete the *angryChildren* function in the editor below. It should return an integer that represents the minimum unfairness sum achievable.

*angryChildren* has the following parameter(s):

- $k$ : an integer that represents the number of children
- $packets$ : an array of integers that represent the number of candies in each packet

### Input Format

The first line contains an integer  $n$ .

The second line contains an integer  $k$ .

Each of the next  $n$  lines contains an integer  $packets[i]$ .

### Constraints

$$2 \leq n \leq 10^5$$

$$2 \leq k \leq n$$

$$0 \leq packets[i] \leq 10^9$$

### Output Format

A single integer representing the minimum achievable unfairness sum.

### Sample Input 0

```
7
3
10
100
300
200
1000
20
30
```

### Sample Output 0

```
40
```

### Explanation 0

Bill Gates will choose packets having 10, 20 and 30 candies. The unfairness sum is  $|10 - 20| + |20 - 30| + |10 - 30| = 40$ .

### Sample Input 1

10  
4  
1  
2  
3  
4  
10  
20  
30  
40  
100  
200

### Sample Output 1

10

### Explanation 1

Bill Gates will choose 4 packets having 1,2,3 and 4 candies. The unfairness sum is  $|1 - 2| + |1 - 3| + |1 - 4| + |2 - 3| + |2 - 4| + |3 - 4| = 10$ .