

# Angry Children



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 any fighting among the children, he would like to pick  $K$  out of  $N$  packets, such that *unfairness* is minimized.

Suppose the  $K$  packets have  $(x_1, x_2, x_3, \dots, x_k)$  candies in them, where  $x_i$  denotes the number of candies in the  $i^{th}$  packet, then we define *unfairness* as

$$\max(x_1, x_2, \dots, x_k) - \min(x_1, x_2, \dots, x_k)$$

where *max* denotes the highest value amongst the elements, and *min* denotes the least value amongst the elements. Can you figure out the minimum *unfairness* and print it?

## Input Format

The first line contains an integer  $N$ .  
The second line contains an integer  $K$ .  $N$  lines follow. Each line contains an integer that denotes the candy in the  $i^{th}$  packet.

## Output Format

An integer that denotes the minimum possible value of *unfairness*.

## Constraints

- $1 \leq N \leq 10^5$
- $1 \leq K \leq N$
- $0 \leq \text{number of candies in any packet} \leq 10^9$

## Sample Input #00

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

## Sample Output #00

```
20
```

## Explanation #00

Here  $K = 3$ . We can choose packets that contain 10,20,30 candies. The unfairness is

$$\max(10,20,30) - \min(10,20,30) = 30 - 10 = 20$$

## Sample Input #01

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

## Sample Output #01

```
3
```

**Explanation #01**

Here  $K = 4$ . We can choose the packets that contain 1,2,3,4 candies. The unfairness is

$$\max(1,2,3,4) - \min(1,2,3,4) = 4 - 1 = 3$$