

# **Max Min**



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Given a list of N integers, your task is to select K integers from the list such that its *unfairness* is minimized.

if  $(x_1, x_2, x_3, \ldots, x_k)$  are K numbers selected from the list N, the unfairness is defined as

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

where max denotes the largest integer among the elements of K, and min denotes the smallest integer among the elements of K.

#### **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 belongs to the list N.

**Note**: Integers in the list N may not be unique.

#### **Output Format**

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

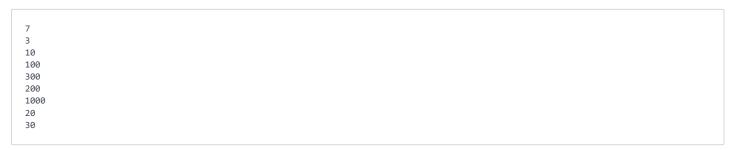
#### **Constraints**

 $2 \le N \le 10^5$ 

 $2 \leq K \leq N$ 

 $0 \le integer in N \le 10^9$ 

# Sample Input #00



## Sample Output #00

20

#### Explanation #00

Here K=3; selecting the 3 integers such that K=10,20,30, unfairness equals

```
\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; selecting the 4 integers 1,2,3,4, unfairness equals

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

## Sample Input #02

```
6
3
10
20
30
100
101
102
```

# Sample Output #02

2

# Explanation #02

Here K=3; the 3 integers so that the difference between the maximum and the minimum is the smallest are 100,101,102, which means unfairness equals

```
max(100, 101, 102) - min(100, 101, 102) = 102 - 100 = 2
```

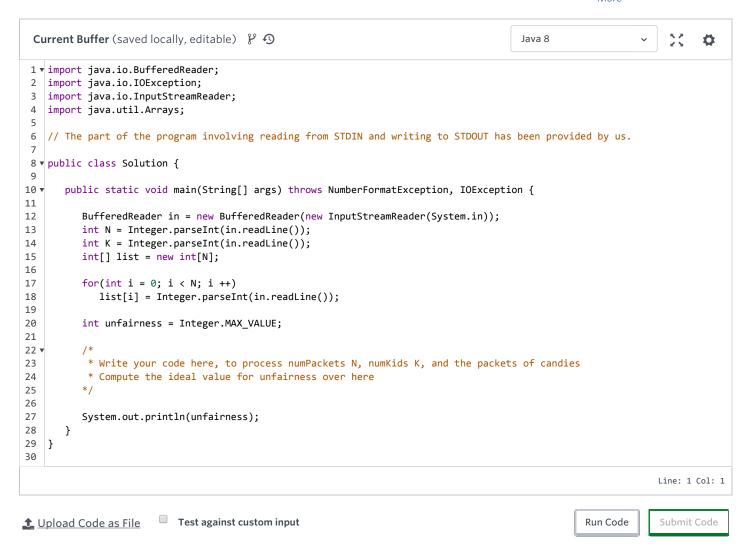
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