# **Max Min**



#### **Problem Statement**

Given a list of N integers, your task is to select K integers from the list such that its  $\mbox{\it unfairness}$  is minimized.

if  $(x_1, x_2, x_3, \dots, x_k)$  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 denote 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.

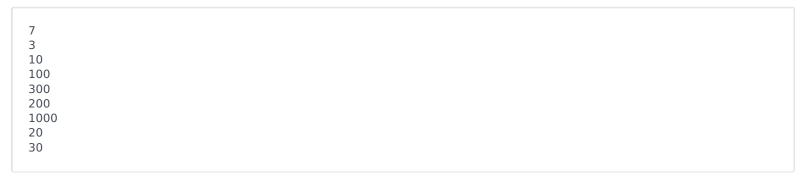
## **Constraints**

 $2 < N < 10^5$ 

2 < K < 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 candies. The unfairness is

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

## Sample Input #01

4	Γ
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 . The unfairness is

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

## Sample Input #02

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

# Sample Output #02

2

## **Explanation #02**

Here K=3, 3 integers such that the difference between the maximum and the minimum is smallest is 100,101,102

 $\max(100, 101, 102) - \min(100, 101, 102) = 102 - 100 = 2$